

PURCHASING

MARCH, 1941.....CONTENTS

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PURCHASING MEN FOR A PURCHASING JOB



AFTER months of intensive effort on the National Defense program we have learned that, despite our matchless national resources of plant and industrial genius, production for defense

can not be superimposed upon the normal production process with the hope of achieving the necessary results. It is too big, and too urgent. Non-essential industry must take to the side tracks while the express lanes are cleared for defense production.

At the same time it becomes evident that defense purchasing—and the National Defense program is basically a matter of procurement—can not be superimposed upon a buying organization geared to normal peacetime requirements, with the hope of achieving efficiency and economy. This is in no sense a reflection upon the experienced buyers of the military services, nor upon those who have worked earnestly and well to coordinate buying machinery which simply was never designed to cope with a program of such magnitude that it could throw our whole economic system out of alignment.

Industry has therefore been asked to loan its purchasing experts in the national interest, just as its production experts, materials experts, and technical experts have been called. This is selective service at its best. The vanguard is already quietly at work in Washington, and others are on the way—men who are widely known and respected for their purchasing accomplishments in private industry, who are trained and experienced in analyzing problems of supply and finding the answer. It is a source of renewed confidence to know that the biggest purchasing job of our time is now to be carried through by purchasing men.

Stuart F. Weinritz

How to get Steel *More Quickly*

A practical suggestion that may help you

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PRIORITIES and PURCHASING under

By STUART F. HEINRITZ



Office of Production Management

**Defense procurement progresses from
the advisory to the executive stage**

THE governmental organization for procurement of defense materials passed from the advisory to the administrative and executive stage on January 7th, with the establishment of the Office of Production Management. This body is directly responsible to the President, being a part of the Office of Emergency Management which was created by administrative order on May 25th, 1940, within the Executive Office of the President, under the authority of an executive order of September 8, 1939, providing for such organization at the discretion of the President in the event of a national emergency. It does not supplant the National Defense Advisory Commission, which continues to meet and to function as formerly. It does supplant the office of Coordinator of National Defense Purchases and the Priorities Board, both of which were abolished when OPM was established. Its personnel has been largely drawn from those organizations and the Defense Commission, and its authority has been greatly strengthened, as shown in the accompanying excerpts from the executive order, where some of the significant phrases have been editorially emphasized.

The OPM consists of William S. Knudsen, Director

Even after major contracts have been let, the work must be expedited by making materials available and finding competent subcontractors to furnish parts.

General; Sidney Hillman, Associate Director General; Henry L. Stimson, Secretary of War; and Frank Knox, Secretary of the Navy. It should be noted here that in addition to the line of authority inherent in the present organization, Mr. Stimson and Mr. Knox, serving in their capacity as Secretaries of War and Navy, are responsible to the President in his capacity as Commander in Chief of the Army and the Navy.

There are three divisions operating under OPM: Production, under the direction of J. D. Biggers; Priorities, under the direction of E. R. Stettinius, Jr.; and Purchases, under the direction of Donald M. Nelson.

Priorities Organization

The Priorities Division, under Director Stettinius has set up five sections, each headed by a Priorities Executive. These are: (1) Minerals and Metals, E. M. Hopkins; (2) Chemicals, H. E. Howe; (3) Commercial Aircraft, A. D. Whiteside; (4) Tools and Equipment, D. S. Kimball; (5) General Products, W. E. Wickenden. These five executives, with Mr. Stettinius, represent the total administrative authority of the division; the rest of the organization is essentially advisory in its capacity. This includes commodity experts in each group, and a series of priority committees, which will be expanded from time to time as occasion arises.

The typical membership of a priority committee consists of the Group Executive as chairman, and four members representing the Army, the Navy, the producers, and industrial consumers. A representative of the Production Division is assigned to meet with each committee, and in some instances a special technical consultant. The committees are set up to coincide with the classifications of the Materials Division so as to avoid confusion.

Priority committees have been formed for steel; aluminum and magnesium; non-ferrous metals and minerals; chemicals; commercial aircraft; machine tools; rubber (natural and synthetic); hides, skins and leather. Similar committees are contemplated for ferrous minerals and alloys; tools and mill supplies; other equipment and supplies.

As representatives of industrial consumers, OPM has recognized the special qualifications of purchasing men, as evidenced by the selection of E. J. Barney, Purchasing Agent of the Frigidaire Division, General Motors Corp., to serve on the priorities committee for aluminum and magnesium, and Harry L. Erlicher, Vice President in charge of Purchases, General Electric Co., to serve on the committee for non-ferrous metals and minerals.

Where Priorities Apply

Preference ratings, or priorities, will apply to a selected list of "critical items"—materials and parts which are essential to the defense program and which usually have no direct counterpart in commercial production, so that a competitive demand might arise as between manufacturers under two or more of the groups, or between defense needs and civilian demand. The "critical list" of items eligible to receive preference ratings is subject to constant review, revision and expansion; it is not released for general publication, but is available to manufacturers and producers working on defense contracts.

The order of preference is indicated by a series of symbols assigned to contracts and orders: AA, which is reserved for exceptional emergencies; A-1-a, A-1-b, . . . A-1-j; A-2, A-3 . . . A-10. As between contracts

and orders carrying the same rating, the date of delivery contracted for is to determine the order of precedence, except as otherwise specifically requested by the Director of Priorities.

The principal administrative mechanism in the operation of this system is the "priorities certificate," which is the notice to a contractor that a certain material is to be given preferential treatment, if necessary to meet delivery dates. This should be done without prejudice to contracts and orders bearing equal or superior ratings, but by withholding or deferring deliveries on other contracts and orders.

The Army and Navy Munitions Board has the responsibility of determining the relative importance of military items such as guns, tanks, airplanes, ammunition, etc., and on the basis of this determination the contracting officers of the Army and Navy will administer the assignment of preference ratings to prime contracts involving the critical items. Certificates, signed in blank by the Director of Priorities, are issued to these contracting officers by the Army and Navy Munitions Board for such use, and a government supplier can apply to the contracting officers or inspectors in contact with his work for such a rating when necessary.

Preference ratings can be extended to the first subcontractors (those who sell their products directly to the prime contractor) at the discretion of the Army or Navy inspector or contracting officer, provided the item purchased from the first subcontractor is on the critical list.

Ratings on all other contracts and orders, including Army and Navy subcontractors below the first line, are administered by the Director of Priorities. While the system is intended primarily to implement the purchasing and production of defense materials required by the War and Navy Departments, certain important civilian projects and foreign orders may be given priority aid, where speed is essential. It is the policy of this division to give careful consideration to a balance between civilian needs and defense needs at all times.

Handling an Application

Application for a preference rating must be made on a prescribed form, addressed to the Director of Priorities. These forms can be obtained from all Federal Reserve offices, from Army and Navy field procurement and inspection officers, or from the Director of Priorities, New Social Security Building, Washington, D. C. The form requires that the applicant substantiate his claim for a rating without harm to other parts of the defense program. Before making such an application, every effort should be made to arrange for the delivery of materials and equipment on the required dates through regular commercial channels. The readjustment of schedules to make full use of machinery, subcontracting, and the adaptation of substitute materials and processes are also urged.

The application is routed to the Priority Executive of the appropriate group for action. Several courses of action are open. The request may come within an area eligible for automatic decision due to the nature of the contract and the type of material, included on the critical list. If it is a request for special or individual action, the Executive has available the counsel of his own special advisers and those in the Materials Section, as well as the priorities committee in which all interested viewpoints are represented. He will also check with the Production Division and the Purchasing Division for alternative suggestions on handling the sit-

uation or finding sources of supply. The decision, however, is his responsibility as the group executive. These decisions are all routed through the central office to insure coordination, and priority certificates are issued only by the Director of Priorities.

This centralized procedure and responsibility, and the administrative technique prescribed, is designed to simplify and expedite action. Up to the present time, policy decisions as well as administrative detail have to be considered in most cases, and the process will be greatly accelerated as the work progresses to a more completely administrative stage. Nevertheless, satisfactory solutions have been found in many cases within 48 hours without the necessity of issuing preference certificates. It has been a source of satisfaction to the division that industry generally has sought to solve its own problems; the inflow of applications has been less voluminous than had been expected when the plan was announced. As a statement of general policy, Mr. Stettinius has announced:

"The Priorities Division will seek to avoid the imposition of priorities wherever such imposition would needlessly conflict with civil and private activities, and, insofar as possible, action will be withheld until an actual shortage in connection with defense is imminent."

The Machine Tool Order

Much attention has been directed to the order issued by the Priorities Division on January 31, addressed to all machine tool builders. This order stated:

"Inasmuch as machine tools are so urgently needed, it has been decided, in order to conserve the supply for national defense needs, that we ask you to cease making shipments of machine tools beginning thirty days from the date of this letter, except to those customers who have by that time or thereafter secured official priority ratings. Please communicate with this office if you experience difficulty in the application of this request."

This instruction meant that the purchaser who had a machine tool on order, but undelivered prior to March 3rd, could not secure it from the manufacturer without an official priority rating. It was distinctly a first step toward the curtailment of non-essential industry during the emergency, in favor of essential industry.

This order was popularly referred to as the first "mandatory priority", in distinction from the "voluntary priorities" which have been in effect for some months, and are still in effect for most of the materials and products concerned. That interpretation was not shared by the Priorities Division itself, which regarded the communication on machine tools as merely a shifting of emphasis—a matter of degree rather than of principle, not involving any great change in actual effect. It is pointed out that the basic authority of government has not been changed, and that any reference to the Acts, as in earlier and less drastic requests, however softly and politely phrased, actually implied the whole force of this authority.

In connection with his subsequent order of February 24th, covering the machine tool and aluminum industries, Director Stettinius did use the term, stating: "The steps taken, made necessary by the national defense program, represent the first industry-wide, *mandatory priority action* by the priorities division."

That such authority exists, to give any request from OPM the force and validity of a binding order, cannot be doubted. Under the wording of the Navy Speed-Up Bill and the Selective Service Act of 1940, that authority extends to conscription of plant and materials, with severe penalties for non-compliance. In the national emergency, non-essential industry must give way to essential defense industry whenever a conflict of requirements arises. The machine tool order is based on a finding that production for defense, in this field,

EXECUTIVE ORDER, JANUARY 7, 1941

The Office of Production Management shall:

- a. Formulate **and execute** in the public interest all measures needful and appropriate in order (1) to increase, accelerate, and regulate the production and supply of materials, articles and equipment and the provision of emergency plant facilities and services required for the national defense, and (2) to insure effective coordination of those activities of the several departments, corporations, and other agencies of the Government which are directly concerned therewith.
- b. Survey, analyze, and summarize for purposes of coordination the stated requirements of the War and Navy and other departments and agencies of the Government, **and of foreign governments** for materials, articles, and equipment needed for defense.
- c. Advise with respect to the plans and schedules of the various departments and agencies for the purchase of materials, articles, and equipment required for defense, to **coordinate the placement of major defense orders and contracts** and to keep informed of the progress of the various programs of production and supply.
- d. Plan **and take all lawful steps** necessary to assure the provisions of an adequate supply of raw materials essential to the production of finished products needed for defense.
- e. Formulate plans for the mobilization for defense of the production facilities of the Nation, and to **take all lawful action** necessary to carry out such plans.
- f. Determine the adequacy of existing production facilities and to **assure their maximum use**; and, when necessary, to stimulate and plan the creation of such additional facilities and sources of production and supply as may be essential to increase and expedite defense production.
- g. Determine when, to what extent, and in what manner priorities shall be accorded to deliveries of material as provided in Section 2 (a) of the Act entitled "An Act to Expedite National Defense and for other Purposes," approved June 28, 1940. Deliveries of material **shall take priority, as provided in said Act, in accordance with such determinations** and the orders issued in pursuance thereof by the Office of Production Management.
- h. Perform the functions and exercise the authorities vested in the President by Section 9 of the Selective Training and Service Act of 1940.
- i. Serve as the liaison and channel of communications between the Advisory Commission to the Council of National Defense and the Departments of War and Navy with respect to the duties imposed upon the Commission by the following named acts, and with respect to all other matters pertaining to defense purchasing and production; Public Nos. 667, 781, 800 and 801 and Public Resolution No. 95, 76th Congress.
- j. Perform such other functions as the President may from time to time assign or delegate to it.

can no longer be superimposed upon production for normal demand but must supersede that production; consequently the industry is no longer permitted to accept or deliver any order without a priority rating from headquarters.

The effect of this procedure if it is applied in successive logical steps, is graphically pictured by George A. Renard in the *N.A.P.A. Bulletin* by the following example: "For instance, a plant to manufacture copper ash trays cannot now get machine tools to start or expand. Put a priority rating control on copper and those already operating must shut down or make shells or other essential materials their equipment can produce. If they refuse to turn the equipment to an essential use during the emergency, the Conscription Act gives the government authority to step in and make use of it."

Priorities and Prices

The machine tool priority order was promptly followed by price control, setting a ceiling on the prices for used and reconditioned equipment—the only section of supply in this field not coming within the order and consequently still available for general purchases. The two procedures are inseparable. Price control must follow rigid priorities, both to insure a fair return on the products whose distribution is fixed by the order and to prevent the possibility of non-essential industries bidding up all out of proportion to value for the very limited supply that might be available to them after the bulk of production had been consigned to the defense requirement. Examples of such excessive prices have appeared in recent weeks when scrap zinc and aluminum were quoted higher than the primary metals. The similar danger in respect to used machine tools was stopped before it had fairly started, by a regulation which is eminently reasonable and conservative.

Price control at the present time is vested in the Price Stabilization Division of the National Defense Advisory Commission, which has only advisory and persuasive powers, plus recourse to such enforcement agencies as the Department of Justice and the Federal Trade Commission when specific irregularities or abuses can be shown. However, as in other parts of the program, authority is found in existing legislation to put plenty of "teeth" into price recommendations. Two possible courses of action have been suggested; there may be still others.

Defense officials point out that if a maximum price is set for a given material, (1) Army and Navy procurement officers can be instructed to pay no higher price for that material. They have the legal authority to place compulsory orders if requirements are not filled by voluntary offers at or below that maximum, thus making it effective so far as government orders are concerned. (2) With governmental authority to draft industry by requiring orders to be filled, OPM or the President himself could commandeer any stocks offered in the general market at higher than the ceiling price, paying that ceiling price and making it generally effective by the threat of such commandeering.

No special legislation for broader price control is now in contemplation. Advisors from the Price Stabilization Division of NDAC are in close liaison with the priorities organization and sit in on committee meetings in a consulting capacity. The administration policy still favors price stabilization achieved by persuasive means. Yet it would be a simple matter to add a Division of Prices in OPM, alongside of Production, Purchases and Priorities, or to set up an

Office of Price Control, coordinate with OPM, under the Office of Emergency Management. There is existing authority for either move in the same orders which established OPM.

New Purchase Authority

Meanwhile, the authority and duties of the Division of Purchases have been clarified and expanded. Orders and contracts are still being initiated and placed through the Army and Navy procurement offices, and final responsibility for specifications and required delivery dates will rest with the respective services. But it is now specified that the Director of Purchases shall be informed in advance, concerning all items to be acquired, together with the proposed specifications and delivery schedules. He has the power to "review certain procurement procedures, methods, policies and specifications and make such recommendations as will facilitate efficient procurement." He has the prerogative of suggesting alternatives if it appears that the orders are being placed unwisely. All contracts for \$500,000 or more must clear through his office. Proposals involving unusual procurement problems, or likely to have a substantial impact on the market, are to be submitted to him, on request.

The powers are broader than this restrained language would indicate. They cover the whole of procurement policy, and centralize responsibility for all purchases. Being apprised in advance of a proposed purchase, Director Nelson can decide that it involves an unusual procurement problem and thus becomes subject to review by the division. Then, even though bids are taken by the Army or Navy, these bids can be rejected in the Purchase Division and new policies or negotiations initiated in respect to the transaction.

Most important, the new set-up has been developed in consultation with the War and Navy Departments, and is endorsed by these services as a satisfactory working arrangement, which will presumably bring to an end some of the internal friction which has characterized previous relationships between the service and civilian purchasing officers.

The statement indicates the probable course of action, which will be directed first upon certain spot items or product areas where the greatest immediate improvements can be effected, broadening in scope and influence as circumstances and staff permit.

To this end a more comprehensive purchasing organization is now in process of development. It contemplates setting up four major divisions, each under the supervision of an Assistant Director of Purchases. The first of these, on textiles, has been functioning from the beginning of the program. The second, on foods, has been active for about three months, under Douglas McKeachie, who in civilian life is Director of Purchases for the Eastern Division of the Great Atlantic & Pacific Tea Co. The third, dealing with equipment and supplies, got under way in February, headed by Donald G. Clark, a past president of the N.A.P.A., now on leave from his position as Director of Purchases for the Gulf Oil Corp. The fourth section will deal with industrial materials.

Invitations have been extended to a number of well known and highly qualified purchasing executives in industry, and present indications are that for the first time since the inception of the defense program, Director Nelson will have the opportunity to put into effect the purchasing standards which industry demands in its own procurement work, and to carry them out with the assistance of men who have demonstrated their purchasing ability in private industry.

JESSE H. JONES

Secretary of Commerce and
Federal Loan Administrator

By A. N. WECKSLER

In an exclusive interview for **PURCHASING** Jesse H. Jones, who is directing the rubber and metals stockpile program, tells what his objectives are and how the accumulated materials will be distributed to industry



GOVERNMENT STOCK PILES INSURE INDUSTRY'S SUPPLY



More than a dozen parts of the modern gas mask are fashioned from rubber.

FROM a peace-time attitude of complacent self-sufficiency, industry has awakened to the realization that war conditions may at any time disrupt the American lifeline to strategic resources in the Far East—to rubber, tin, manganese and tungsten.

Obviously, two expedients could be adopted in the emergency: (1) to search for substitute materials, and (2) to build huge stockpiles. The job of developing substitutes was delegated to industry itself, but industry could not possibly accumulate the reserve materials which would be necessary for one year's operation.

The task of building stockpiles could properly be assumed only by the Government, inasmuch as the tonnage and expenditures which are involved reach phenomenal figures, and also because of their international character. Further, such purchases of materials require the supervision of a level-headed businessman who understands the problems of industry.

The assignment of accumulating rubber and metals reserves was given to Secretary of Commerce Jesse H. Jones, who, in 45 years of business experience, has acquired the reputation of being a shrewd trader and a realistic financier.



Photographs by Harris & Ewing, U. S. Army Signal Corps, National Defense Commission, and Bureau of Plant Industry

Secretary Jones is convinced that under most circumstances, industry can handle its own problems. Accordingly, although in his capacity of Federal Loan Administrator and through his directorship in the Reconstruction Finance Corporation, the Metals Reserve Company and the Rubber Reserve Company, he is the controlling factor in the purchase of stockpile materials, representatives of industry are being consulted at every step, and actual distribution of the materials to industry will most likely be handled by industry.

Procurement and Distribution

The stockpile program entails two distinct problems. The first is the procurement of these materials while the ocean lanes are still free to American merchant commerce. The second is the method of disbursing the materials through industry in such a manner as to be of greater value in maintaining both defense production and normal industry.

Because of the possible repercussions on the stockpile program, Secretary Jones has been reticent in making statements. Nevertheless he gave an exclusive interview for *PURCHASING*, on the premise that purchasing agents throughout the country are entitled to know the objectives and purposes of the program.

Relative to distribution of the huge stock of materials which is being accumulated, Secretary Jones stated:

"Distribution will be worked out on a sensible program and on a market fair and appropriate to the people in that line of business."

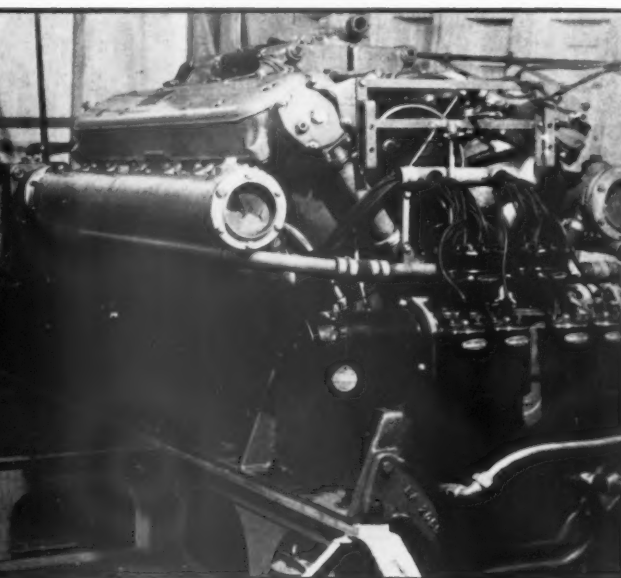
Secretary Jones pointed out that the mechanics of distributing the materials to industry might differ in each case, and that no rigid policy had been formulated. However, the current disbursement of 100,000 tons of copper by the Metals Reserve Company provides an accurate index of the methods favored.

Buffer Stock of Copper

Copper, while not among the strategic materials imported from the Far East, presents nonetheless an immediate problem to American industry. The United

States is the largest producer, refiner and consumer of copper. Armaments and defense industry generally consume copper in such quantities that even early stages of production have revealed a shortage.

Shells for the guns which will defend us require vast stores of copper in reserve, and already the Metals Reserve Company has released 100,000 tons of "Government metal" to industry as the armaments' program makes heavy demands on copper supplies.



A converted airplane engine which powers a sleek auxiliary vessel. Tin is a requisite metal for the bearings which make this huge motor possible.

Several months ago, the Metals Reserve Company negotiated the purchase of 200,000 tons of copper from Chilean sources. Before deliveries on this contract began, Secretary Jones announced that, due to a shortage of copper created by the defense program, all or such part of 100,000 tons of the copper purchase as may be necessary to meet manufacturing requirements, will be made available to the market generally.

In explaining this program, the Secretary of Commerce said:

"This copper will be made available to the extent that the domestic supply is insufficient to meet the present demand."

Implementing the disbursement of the metal, Secretary Jones appointed a committee to receive applications and to make recommendations for the allocation of the copper. Users of copper were mailed questionnaires as to their possible requirements, and their immediate need for the metal.

Members of the committee are: Mr. R. R. Eckert, secretary of the United States Copper Association, 50 Broadway, New York, chairman; Mr. T. E. Veltfort, manager of the Copper and Brass Research Association, 420 Lexington Ave., New York; Mr. W. J. Donald, managing director of the National Electric Manufacturers Association, 155 E. 44th St., New York; Mr. Donald Wallace, of the Advisory Commission to

the Council of National Defense, Washington, D. C.; and Mr. John Church, representing the Office of Production Management, Washington, D. C.

Obviously, there is no question of accumulating a long-term supply of copper, but in the case of this metal, the policy is to acquire a buffer supply with which to supplement domestic production in time of emergency. An important element in the sale to industry is the price policy. The copper will be sold at 12 cents a pound, the current market price.

Additional copper will undoubtedly be purchased by the Metals Reserve Company, as defense industry will develop even greater demands for the metal.



"excess" was applied to any amounts of the metal produced in excess of the quota set by the Committee, effective July 1, 1940.

Under normal circumstances, tin acquired on the basis of this agreement cannot be made available to American industry until after January 1, 1944, and at that time, only in quantities which will not affect the market price. However, the agreement contains a provision which makes the metal available to industry in the event of a national emergency. The provision reads:

"The tin acquired by the Company (Metals Reserve Company) may be released upon request of the United States Government for use by the United States Gov-



International Agreements

In the instances of rubber and tin, however, where the foreign supply is our sole source, the accumulation of a large stockpile in the face of mounting industrial requirements presents added difficulties. Both rubber and tin are world monopolies, primarily directed under the aegis of British enterprise—rubber, through the fact that the British were pioneers in developing plantation rubber in the Far East, and tin, through the monopoly exercised by British control of tin smelters.

Purchases of these two commodities have been made in agreement with the International Tin Committee and the International Rubber Regulation Committee. In connection with the tin procurement plan, the Metals Reserve Company entered into an agreement with the Tin Committee to purchase all "excess" tin. The term

Tin mines in Bolivia are operating at full blast to furnish tin ore for the United States stockpile.

Defense requirements of copper are so extensive that the Metals Reserve Company has purchased a buffer supply of the metal from such Chilean mines as that pictured above.

One effect of the program is to foster Western Hemisphere sources of supply. A Mexican worker gashes trees to secure raw rubber for our stockpile.





Modern mechanized armament depends on materials. For the steel in the big guns, the arsenals require manganese. Large tonnages of rubber are needed for the tires, while manganese, copper and tin are used in manufacturing tractors and tanks.

ernment and may be released to private consumers in the event of a national emergency which, in the opinion of the Company, requires such release."

It is evident from the foregoing that Secretary Jones can himself construe the emergency, and release the metal at any time he deems expedient. As in the case of copper, it seems likely he will appoint a committee of representatives of industry most concerned, and this committee will handle the sale of the Government tin.

"We will let industry work out some plan to handle the metal," the Cabinet member declared.

Secretary Jones stated that the prices at which the metal will be sold at the time of release to industry will be determined "when we get to it", and indicated no thought has been given to priorities in disbursement of the metal.

Industry Handles Rubber Stocks

Sale of rubber from the stockpile is a more simple problem, in that the number of companies consuming large tonnages of natural rubber is limited, and the needs of the industry can be easily determined. Again in the case of rubber, the industry will probably handle distribution of the reserve stock, and turn the supply over periodically to keep the stockpile from deteriorating.

The Government stockpile is stored by the rubber industry along with the accumulated commercial stocks, and sale of Government rubber will simply be a matter of releasing the Government supply to industry through existing channels of distribution.

Financing the Program

The mechanics of purchasing rubber and metals for the stockpile are handled by the Rubber Reserve Company and Metals Reserve Company, each with a capital of \$5,000,000 and both created specifically for the stockpile program. However, purchases are closely controlled by the Reconstruction Finance Corporation,

which makes loans to the two reserve companies for the purchase of the materials.

A number of considerations enter into the procurement program, beyond the problems of acquiring the material. One of the major considerations delves deeply into international politics, and advance loans have been made to foreign countries with the political significance as large a factor as the need for materials.

In discussing this phase of policy, Secretary Jones explained:

"We try to buy as much as we can from countries that need assistance."

Naturally, such assistance is extended at a price, and through such loans and purchases, the United States has been able to accomplish certain diplomatic achievements which might otherwise have been impossible.

In still other instances, the purchases assume a semblance of barter, with the United States bolstering the purchasing power of foreign countries by buying materials, with the understanding that the money will be spent for manufactured goods from this country.

Present Commitments

Understandably the stockpile program must, because of these factors, be conducted in an elastic manner, and contracts for the materials differ. A recent contract for Bolivian tin calls for the purchase by this country of tin concentrates sufficient to smelt approximately 18,000 tons of fine tin a year.

In contrast to previous practice, when Bolivian ore was sent to England to be smelted and then shipped to this country as fine tin, the Reconstruction Finance Corporation is negotiating for the erection of a tin smelter in this country for the production of fine tin.

The cost of tin smelted in this country will be in the neighborhood of 50 cents a pound, a price which is over a cent per pound higher than the price of Far Eastern and British smelted tin.

Continued on page 95

HOW THE AMERICAN TOBACCO COMPANY BUYS



A FEW weeks ago, executives of twenty-three hundred business houses in many widely diversified fields of industry found in their mail a most unusual, handsome, and intensely interesting booklet. Boldly displayed upon its cover is the slogan, "Sold American," familiarized in the tobacco auctioneer's chant on the Hit Parade and other of the company's nation-wide broadcasts. In smaller type, closely lettered across all four cover pages, are the names of scores upon scores of manufacturers, a cross section of American industry at its best. Within its pages, in text and picture, is one of the most unique and effective statements of sound public and trade relations imaginable. It is the message of The American Tobacco Company's Purchasing Department to its suppliers.

Over the signature of Richard J. Boylan, who, in addition to being the Director of Purchases, is also Secretary of the company and a member of its Board of Directors, is this message:

"TO OUR SUPPLIERS

"Business, commerce, trade—call it what you will—the everyday exchange of goods and services creates one of the strongest, and certainly one of the most truly universal bonds among the peoples of the world.

"For none of us lives solely by his own toil; we all help mutually to provide each other's livelihood. Whatever we as individuals add to the sum of the world's stock of goods and services, it is a product not merely of our own hands and minds, but also of the hands and minds of others.

"If this is true of the individual, it applies with even greater force to the corporation in which a number of people combine their resources, capacities and energies, enlarge the scope of their service and share the compensation earned by their united efforts.

"So it is with our business—The American Tobacco Company. Like any one of a thousand other business concerns,

The Purchasing Department of The American Tobacco Company is probably unique in having its own departmental seal—an expression of official recognition of the importance of the purchasing function.

we are just one link in the chain of American industry. The service we render is not the product of our own thought, labor and skill alone—it is the result of our efforts joined with those of thousands of other workers in all kinds of occupations, throughout the United States and its possessions and in many foreign countries as well.

"The job of The American Tobacco Company is to select, analyze, and purchase tobaccos, to process and manufacture them into products of the highest quality possible, to make the merits of those products known, and to see to it that they are readily available to the consumer in pleasing and convenient form.

"The American Tobacco Company depends upon the farmer for its supply of tobacco. He, in turn, looks to us to provide a market for his crop, converting it from raw material into pleasant and desirable articles of commerce.

"The American Tobacco Company relies upon you for the great variety of goods and services it must have in performing these functions of manufacture and distribution. In turn, the orders we place with you—be they large or small—play a role in the relative prosperity of your business.

"There are many ways in which we work together to our mutual benefit.

"In every plant and office of our Company you will find this sign prominently displayed: 'Quality of Product is Essential to Continuing Success.'

"That is our creed, put into words by Mr. George W. Hill, President of this Company. We give practical expression to it by offering the consumer a warranty. One of the reasons why we can give that warranty to the public is because we know your first concern is to maintain high standards in your own operations, to improve constantly the quality of the products we obtain from you.

"On the other hand, our Research Laboratory—the largest and most modernly equipped research organization in the world devoted exclusively to the study of tobacco—subjects to rigorous tests the cigarette paper, foil, cellophane, adhesives, cartons, bags, inks, and other commodities with which you supply us. We make these tests constantly to safeguard and improve the quality of our own products for the protection of the consumer. In doing so, we help you to improve the quality of your product, discover potential economies, and raise standards in your own particular fields.

RICHARD J. BOYLAN

Secretary and
Director of Purchases

Mr. Boylan joined The American Tobacco Company organization in 1901 as an office boy, and later was advanced to clerk in its Legal Department. In the reorganization of 1911, he became Chief Clerk in the office of the Secretary, and five years later was elected Assistant Secretary of the Corporation. In 1926 he was appointed Director of Purchases, heading the Department which he has guided for the past fifteen years. Mr. Boylan was elected Secretary of the Company in 1928 and became a member of its Board of Directors the following year. He is also a director and corporate officer of several of its subsidiary companies.



"The Purchasing Department of The American Tobacco Company and its subsidiaries expends over \$18,000,000.00 yearly in purchases of commodities and services, entirely apart from its purchases of tobacco, and its expenditures in connection with manufacturing and other operations.

"Our buying orders are placed with more than 2,300 suppliers located in every State of the Union, and in many foreign countries, and provide employment for thousands of people in almost every type of occupation, all over the world.

"These purchases include approximately 1,100 different items—basic materials extracted from the earth, the products of the soil, manufactures of an infinite variety. The more than 25,000 individual buying orders we place annually range in amount from nominal sums to hundreds of thousands of dollars each.

"In this message we shall attempt to set forth a few interesting facts about the variety and extent of the purchases we make from you. We believe they will bring to you, as they do to us, a renewed appreciation of the important part you play in helping us to serve the public.

"We enjoy and value the fine business relationships with you which have grown out of our mutuality of interest. We want to continue to make those relationships pleasant and profitable to both of us.

Sincerely yours,
RICHARD J. BOYLAN
Director of Purchases"

Significance of Purchases

In the pages following this statement, under the caption, "The 'American' Dollar at Work," many representative examples are cited, showing what the company's purchases mean in terms of production and employment throughout the whole range of industry, and the diffusion of purchasing power created by these buying orders:

"Manufacturing our requirements of cellophane gives 190,000 man-hours of employment annually to American workers; this entirely apart from the employment indirectly provided in the extractive and other industries supplying the raw materials from which cellophane is made.

"More than 1,500 people are employed, directly and indirectly, in making 'Bull' Durham tobacco bags, labels, and tags—not counting those who work at the production of other

materials, such as cotton, paper, twine, thread, and the like, which are used in making these items.

"The manufacture of Lucky Strike cartons gives 1,400 man-hours of regular employment every week in one company's plant.

"To produce the pure maple sugar we consume in a year keeps some 6,700 men and women busy during the sugar-producing season.

"More than 1,700 people are engaged, directly and indirectly, in filling the orders we place annually for licorice with one supplier of this commodity.

"A lithographer reports that our orders for cigar bands and labels mean 352,000 hours of direct and indirect employment every year.

"The men and women who work in one box manufacturing company alone owe 272,000 hours of employment annually to the orders we place for millions of cigar boxes.

"Keeping us supplied with the convenient 'Zip-tape' which gives the Lucky Strike smoker an easy-to-open package of cigarettes enables another company to provide approximately 24,000 man-hours of regular employment to its workers every year."

A number of other interesting facts are cited. It is pointed out that many of the 2,300 individual companies among the list of suppliers have been doing business with this Purchasing Department for more than thirty years, an experience which speaks volumes for the soundness and effectiveness of this buying program from every angle. In summary there is the statement:

"Significant statistics, these—the true picture of The 'American' Dollar at work. There are many companies like ours in America—not great big self-contained business corporations, but simply the means through which the resources, the skills and the energies of all the people, working at their jobs in fields and forests, in mines and factories, in little towns and great industrial centers, are translated into goods and services which these same people in turn consume and enjoy. To that public service, The American Tobacco Company, together with its suppliers, makes an important contribution."

Taken in connection with the contents of the booklet as a whole, this statement reveals a lively interest in and

an enlightened conception of the importance of public relations on the part of one leading company. It may indicate one of the important contributing causes of that leadership. It has often been remarked that the Purchasing Department occupies a key position and enjoys an exceptional opportunity in the development of such relationships. Few purchasing departments have seen that opportunity so clearly, or have had the initiative to do something about it.

The Purchasing Department occupies the greater part of a complete floor in the company's New York office building at 111 Fifth Avenue, and is under Mr. Boylan's direct personal supervision. The buying staff includes two Assistants to the Director of Purchases, three Buyers, and seven Assistant Buyers. With the exception of leaf tobacco, they handle all purchases for the company's eight branches and warehouses; for the eight major departments—Advertising, Cigar, Executive, Legal Manufacturing, New York General Office, Sales, and Traffic; for seven subsidiary companies; for the twelve divisions of American Suppliers, Inc., the tobacco buying unit; and for the American Cigarette and Cigar Company and its seven subsidiaries.

The buying responsibility is divided into four major groups, each Buyer and Assistant Buyer being assigned to a related group of commodities, with which he becomes thoroughly familiar through constant association. These buying divisions are: (1) plant and office maintenance and equipment; (2) miscellaneous sup-

plies; (3) printing and miscellaneous plant supplies; (4) advertising supplies.

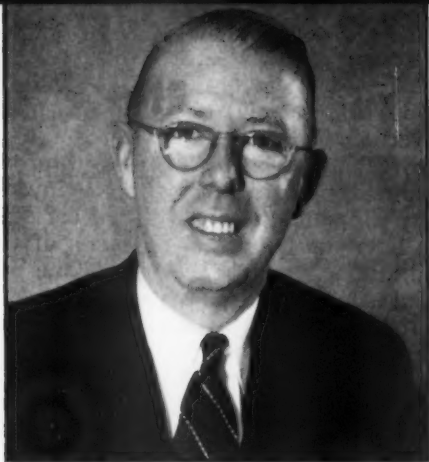
This organization plan is such as to provide specialized knowledge and skill, without any sacrifice of flexibility. For although it is the policy of the department to have the buyers spend much of their time in the field, at their own plants where the materials are used, and at suppliers' plants where the materials are being produced, the staff is sufficiently large and comprehensively trained so that someone is always on hand to deal with each material expertly and with complete responsibility. This is accomplished by avoiding an excessively detailed breakdown of commodity groups, and further by a system of records and specifications that are as nearly complete and foolproof as years of experience can make them.

The work of the department as a whole is coordinated by means of two committees of buyers, one concerned with market conditions, general conference, and traffic, the other with control of quality and standard colors. The latter committee works closely with similar groups from the Advertising, Manufacturing, Research and Sales Departments.

It should be borne in mind that this purchasing responsibility is entirely separate from the purchase of the leaf tobacco, which is handled by three separate departments—American Suppliers, Inc., the American Tobacco Company of the Orient, and the Cuban Land and Leaf Tobacco Company—responsible for the hun-

The influence of American Tobacco Company purchase orders reaches into every State of the Union, and provides employment for thousands of workers in almost every type of occupation.





JAMES M. BYRNE
Assistant to the
Director of Purchases



FERDINAND MALLGRAF
Assistant to the
Director of Purchases



LELAND S. JONES
Buyer

LEWIS W. DAVISON
Buyer



JAMES J. CUNNINGHAM
Buyer



JOSEPH J. CONNOLLY
Buyer



RALPH M. McMAHON
Assistant Buyer



MAURICE A. SCHNEIDER
Assistant Buyer



JOSEPH W. GANNON
Assistant Buyer

It is the policy of the Purchasing Department to bring up its buyers from within the organization, and to train them from the start in the procedure and policies which prevail here.

dreds of million pounds of choice tobaccos which the company buys each year in all parts of the world. But that is another story. It is a buying job of major importance, a job for men of specialized experience. For example, in the domestic market alone there is a staff of six Supervisors and seventy-five Buyers following the sales in the flue-cured or bright leaf markets of Virginia, North and South Carolina, and seven Supervisors and sixty Buyers in the Burley or dark leaf markets of Kentucky and Tennessee.

With this single major exception, the company's purchases are centralized in the Purchasing Department at New York. There are, of course, the usual necessary exceptions of local purchases for immediate emergency use; small items and special commodities which, in the discretion of the management, can be procured locally to better advantage; cafeteria and medical supplies. Such purchases, however, are kept at a practical minimum and are strictly limited to the above classifications. In any event, when any purchase other than an emergency item exceeds \$100 in value, the requisition is sent to the Manufacturing Department at the New York office and a regular purchase order is issued to cover the transaction.

In this manner, a constant and positive control is exercised over all materials which are used by the company, and the responsibility for quality is fixed, where it belongs—in the department which issues the order.

Standards

The emphasis on quality expressed in the slogan previously cited, "Quality of Product is Essential to Continuing Success," is no casual matter in this Purchasing Department. It is a theme constantly impressed on buyers and on suppliers. It appears on signs in the purchasing office and in the plants; it is also prominently printed on all requisition forms, requests for quotations, and on purchase orders. The first page of the departmental "Manual of Procedure

and Policy" puts it in practical terms for the buyer, outlining his threefold responsibility:

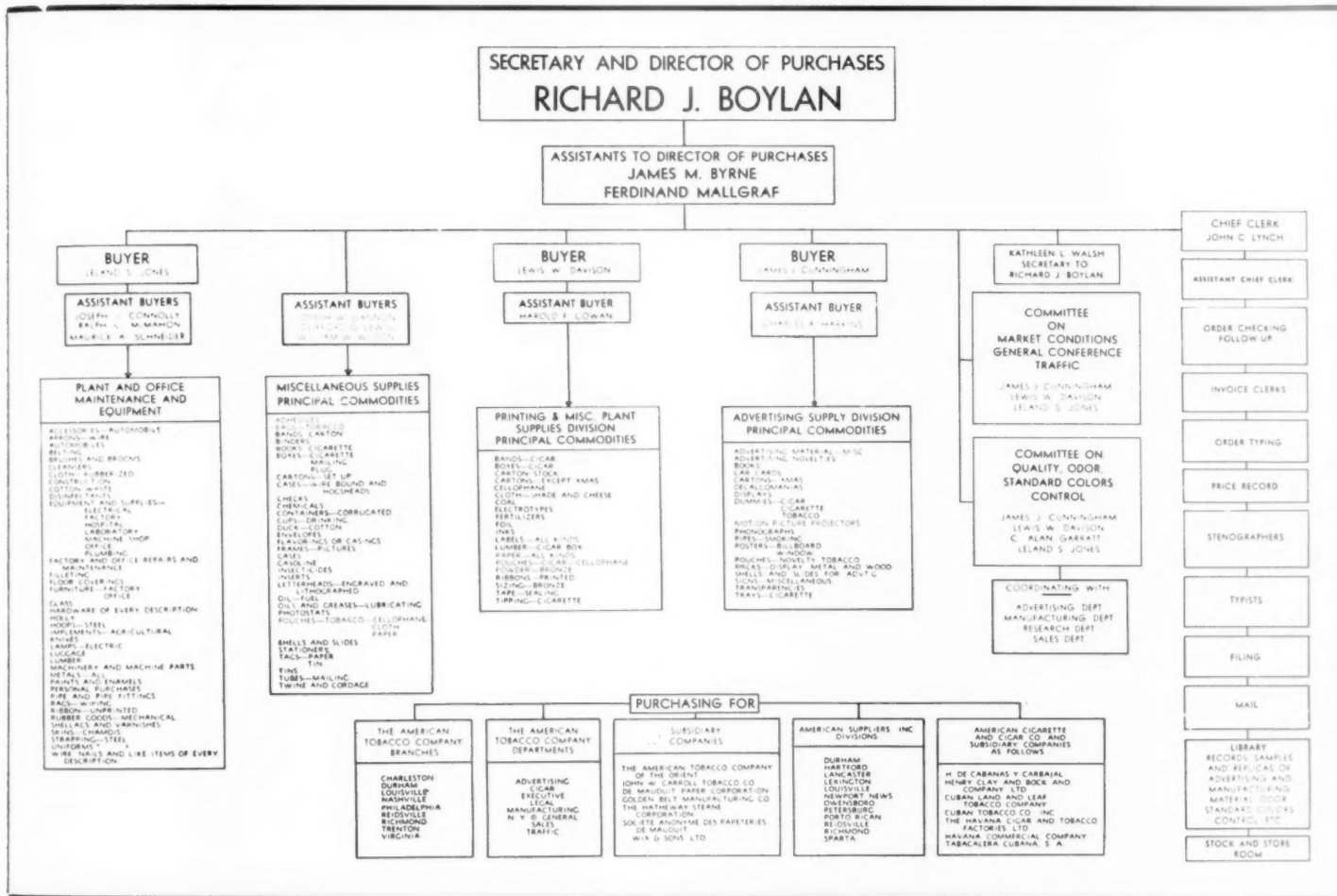
1. Proper selection of reputable vendors.
2. Ability to furnish the vendor with clear and concise specifications.
3. A definite check to ascertain that the commodities received measure up to these specifications.

Specifications are defined as "an accurate description of the commodities to be purchased . . . wherever possible, based on standard formulae or chemical analyses that have been set up by our Research Department over a period of time and which can be confirmed by Research Department in their laboratories."

Such specifications have been set up for the majority of materials constituting the company's regular requirements, and specific regulations are made concerning new materials—basing the standards on those for

similar commodities which have met all requirements on previous purchases, and securing the approval of the plant or department concerned on representative samples, concerning sizes, working qualities, and other factors, before a new specification is established. Any changes in standard packages, carton, label or wrapping material, require the highest executive approval.

In order to make sure that deliveries conform to the established specification, samples are sent by the plants to the Research Department immediately on receipt of each shipment, and, as a matter of purchasing routine, one copy of each purchase order covering such commodities is automatically routed to the Research Department as issued, to enable them to anticipate receipt of the sample and prepare to make an immediate examination and render a prompt report on the quality of materials received. Plants are also required to



CLIFFORD G. LEWIS
Assistant Buyer



WILLIAM W. WILSON
Assistant Buyer



HAROLD F. COWAN
Assistant Buyer



CHARLES A. HARKINS
Assistant Buyer



JOHN C. LYNCH
Chief Clerk

furnish the Purchasing Department with a weekly report, and samples of all wrapping materials they receive, to be passed on by the Purchasing Department committee on quality, odor, and standard colors, for appearance, color and quality of materials.

Control of Quality

Color is a factor receiving particular attention and care in the procurement of all printed labels, cartons, bands, wrappers, and advertising matter. "Lucky Strike green," "Pall Mall red," "Bull Durham yellow," etc., are standards from which no deviation is permitted. Each color is permanently defined in a color swatch guide and by a spectrophotometric curve showing standard color values subject to definite scientific test. Orders involving the use of standard colors are accompanied by duplicate swatches, signed by the vendor and by the buyer, one retained in the company's file, the other for the use of the vendor. A representative of the Purchasing Department is present in the printing or lithographing plant whenever a new run is started, to insure that these standards are observed in the production process. Similar personal follow-up is encouraged on other commodities as well.

The specification or ordering description is also detailed on the purchase record card for each item, so that there will be no oversight in providing adequate instructions to the vendor. This form, incidentally, which also lists the approved vendors for a given item and the price record of past purchases, is so comprehensive yet simple that anyone in the department, though not regularly concerned with that particular material, can nevertheless do a competent job of buying on the basis of the record, in an emergency, with a minimum of special research or delay.

A further safeguard for quality of delivered materials is the preparation of a specification sheet to accompany orders, on a regular Purchasing Department form. This is prepared in six copies, with a direct reference to the purchase order by number, and is furnished to all departments concerned, as well as to the vendor. The system includes an acknowledgment copy, to be signed and returned by the vendor, indicating a complete understanding of the requirement.

Model Store

Advertising and display materials, involving art work and color processes, are subject to approvals by Advertising and Sales Departments at every stage of design and preparation before going into production, when they become the responsibility of the Purchasing Department. To this end a unique laboratory method has been devised, in the form of a model store, complete to counters and windows of two sizes, with standard cases, fixtures, and lighting. It is located adjacent to the purchasing office.

On these counters and in these windows, the display material can be set up, viewed, and revised under conditions of actual use, to produce exactly the desired effect. The model store has another practical use. The finished displays are photographed in this setting as an aid to the sales staff and as a guide to the retailer, and the proper and effective use of such material has been greatly enhanced by this detailed pre-purchase attention.

Library

Another interesting feature which has a direct bearing on the maintenance of quality standards is the Purchasing Department library. Besides housing a well chosen collection of reference books on purchasing and statistics, it contains the complete file of company



The Assistant Buyers and clerical staff occupy a large open office directly off the 12th floor lobby of the New York Office building.

standards and specifications, standard color samples, and progressive production samples of important labels, posters, tins, and casings.

There is also a composite exhibit of the varied activities of the department, charts and pictures illustrating pertinent phases of the purchasing function, and some samples of original package designs, historically important in the development of the company's well-known brands. The display cabinets and models indicate the range of several of the varied commodities and materials procured for the company and its subsidiaries.

Value

The second responsibility of the Purchasing Department is to secure value. The manual expresses this by reminding the buyer: "Remember! that until we have secured a dollar in value for every dollar spent—quality and quantity considered—we have not made a satisfactory purchase."

The Purchasing Department committee on market conditions keeps alert to the conditions surrounding the cost of every commodity being purchased, keeping itself informed through trade reports, catalogs, Government bulletins, periodicals, sales interviews, and other sources of information. Buyers are instructed to call to the attention of the Director of Purchases or his assistants any decided variations in price, either up or down, from that noted on the previous purchase, and the reasons for such changes are carefully surveyed.



The Research Laboratory at Richmond is the largest organization of its kind devoted exclusively to the study of tobacco. In addition to its development work, the laboratory is constantly checking the quality of goods delivered on purchase orders.



Since it is recognized that quality and value are more difficult to obtain on rush or emergency orders, and that sufficient time is an important factor in both purchasing and production, a scheduling policy has been adopted in respect to certain classes of requisitions. It is required that finished sketches and art work be furnished to the purchasing department, with the necessary approvals from advertising executives, in accordance with certain definite schedules, among which are the following:

1. Window displays, counter displays, set-ins and posters—six weeks prior to date of first delivery.
2. Muslin signs—twelve weeks prior to date of first delivery.
3. Showcase strips, decalcomania or transparencies—ten weeks prior to first delivery.
4. All Christmas boxes, cartons and packings—not later than July 1 in any year.

The policy of competitive bidding is observed so far as possible. The purchase record card contains spaces for listing up to ten accredited suppliers of each item, and a master list of accredited vendors is also maintained in the department. This is carefully checked and revised each year. The Buyer or Assistant Buyer selects from this list those potential vendors to whom a request for quotation shall be directed.

Quotations are received on the company's own form, after advising the vendors as to the quantity to be ordered, complete specifications, delivery point, time to

be allowed for delivery or shipment, and the final date on which quotations will be considered. The analysis of quotations includes all pertinent factors, and not price alone. Special attention is directed to the responsibility of the vendor, and past performance.

To maintain the company's own competitive position, the following clause is embodied in all contracts covering any extended period of time:

"This contract is accepted with the distinct understanding that no lower prices are made to others than are quoted in this contract, quality and quantity considered. Should any lower prices be quoted during the period of the execution of this contract, automatically such corresponding prices will be made in this contract."

Procedure

Purchasing procedure, as well as policy, is detailed in the department manual, which also contains specimens of all forms currently in use, indexed and tabbed for ready reference. The routine is shown in the flow chart reproduced herewith, tracing the course of a requisition and purchase order from its inception to the ultimate filing. A few of these forms and procedures should be described here in some detail.

Requisitions. The bulk of purchases are based on a factory requisition or an estimate sheet setting forth the probable requirements. Since this data is all-important to the purchasing program, particular care is taken to see that it is complete in every detail.

The estimate sheet must contain the following essential information:

1. The necessary approvals of authorized executives.
2. Number and date.
3. Quantity needed.
4. Adequate description of commodities wanted.
5. A definite date on which the commodities they cover will be needed.

On requisitions, the same requirements prevail and, in addition, they must include the following information:

6. Previous order number and vendor. If the material has not been previously ordered, the requisition is to be marked, "Initial order."
7. Actual usage for the last three months, by months.
8. The amount on hand, in transit, and due on previous orders, and the duration of each, based on previous three months' usage.
9. Point of delivery, if other than the plant from which the requisition emanates.
10. The plant or account to whom charge is to be made, if other than the plant or department from which the requisition emanates.

The Buyers and Assistant Buyers work from this information, and are responsible for checking requisitions and estimates to see that these essential elements are covered definitely and precisely before proceeding with the purchase. Before passing the requisition along to the Chief Clerk for the typing of the purchase order, the Buyer adds these further details:

11. The quantity to be ordered, and the percentage of trade tolerance or overrun or underrun, if any, that will be accepted.
12. A specific shipping date.
13. Complete shipping instructions, including routing, packing (when necessary), etc.
14. Any unusual billing instructions which are not included in the regular order form.
15. Price and terms of payment.
16. A definite statement of the F.O.B. point.



The Purchasing Department library contains a representative display of products illustrating the extent and diversity of purchasing activities.



Departmental files, the record of past experience, have been planned for maximum reference value.

17. Supplier's name.
18. Any additional clauses which shall be required, such as reference to adverse patent guarantee, insurance certificates, etc.
19. Any extra copies which may be required.

Purchase Orders. Owing to special conditions of purchase surrounding some classes of materials, there are special purchase order forms for cigar box orders and for advertising material. The standard order form is used on all other orders. In this connection, reference should be made also to the specification sheet already mentioned, and also to shipping orders which are issued by the plants against contracts and such orders which instruct the supplier to make up specified quantities to be held for later delivery as required. These shipping orders are issued by the plant, but are not sent directly to the vendor. The first three copies are sent to the Purchasing Department, which inserts the supplier's name and the order number against which the shipping order is to be applied. These copies are then distributed as follows: (1) to the vendor; (2) to purchasing department files; (3) to the plant which issued the order, for its own records.

Follow-Up. In a purchasing program as carefully scheduled as in this company, follow-up is of prime importance and is subject to a similarly organized schedule to the end that a proper acknowledgement of the purchase order is received on the company's own form, that shipment will be made on the specified date, and that the invoice is promptly received. There are special regulations for the follow-up of insurance certificates, adverse patent guarantee, performance bonds, and roofing bonds, all scheduled in accordance with the specified delivery and the location of the supplier.

Follow-up is handled by clerks assigned to this function, under the general supervision of the Chief Clerk. Their experience and judgment is generally an adequate guide to procedure. In the event that shipments will not be made as scheduled, the appropriate Buyer is notified by the Chief Clerk. He may take whatever action is necessary to expedite the delivery, or, if this is not absolutely essential, will notify the plant concerning the new promise of delivery. A form letter is provided for this purpose.

Invoices are checked in the Purchasing Department and are routed for payment, one copy going to the completed order file with the purchase order. The impor-

tant regulation in this respect is that invoices must be handled on the same day they are received. No invoices are held over from day to day by the invoice clerks.

Complaints of any nature are referred to the Director of Purchases and, at his discretion, may be referred to the Buyer responsible for the material involved. Complaints from plants and departments are made on a special letterhead edged with red to insure special attention. Each such instance is followed through. Copies of all correspondence on the subject are sent to the Department of Manufacture, and final disposition is reported to the Chief Clerk, who enters the information in the complaint record, a card file indexed by suppliers, so that a complete experience record is available at all times.

Buyers and Assistant Buyers make periodic visits to the several company plants on a schedule prepared by the Director of Purchases. Besides the general educational purpose of familiarizing them with the methods and conditions under which purchased commodities are used, this plan also provides for a personal follow-up on complaints which have been registered. At the completion of such visits, the Buyer submits to the Director of Purchases a formal report covering not only the previously registered complaints, but also any verbal complaints or suggestions which have been discussed in the course of the visit.

Records

The essential records of departmental activities are regarded as the Buyers' working tools and are filed accordingly for purposes of reference and record as required. On open orders, contracts and agreements, material for the perpetual file, the price record, and the suppliers' catalog file, receipts must be obtained for any records taken from the files.

The filing regulations and schedule are as follows:

Open orders—filed alphabetically, and attached to the supplier's invoice when received.

List of accredited vendors—filed geographically by states and cities, alphabetically by vendor's name. The list is revised yearly.

Record of complaints—filed alphabetically by vendor's name; held indefinitely.

Contracts and agreements—indexed by commodities, filed numerically, and held indefinitely.

Suppliers' catalog file--revised yearly.

Material for perpetual file--filed by brands, or by commodity, or by suppliers; held indefinitely.

Price records--filed by brands and by commodities; held indefinitely.

Completed orders--filed numerically; held six years.

Acknowledgement copies of purchase orders--filed numerically; held two years.

Completed requisitions--filed by branches, by months, numerically; held three years.

Local purchase orders--filed by branches, numerically; held six months.

Branch correspondence--filed by branches, by buyer's name, by date; held two years.

Interdepartment correspondence--filed by buyer's name, by date; held two years.

Vendor's invoices and correspondence--filed alphabetically, by date. Correspondence held two years; invoices held one year.

Trade Relations

The subject of public and trade relations has already been discussed. Every member of the department has been made intensely aware of this important phase of purchasing work, and it is given practical expression in the reception of salesmen and in dealings with suppliers.

To permit the buying organization to perform its routine duties properly, the normal hours for interviewing are set as from 1:30 to 4:15 P.M. Regular suppliers are familiar with this schedule and govern themselves accordingly. The morning hours, from 9:30 to 12:00, are available by appointment. The governing principle is that all callers shall be seen promptly and courteously. If the particular Buyer is engaged at the time of a call, the vendor's representative is advised by the receptionist of the approximate time when an interview can be granted.

The mutual interest of buyer and supplier is graphically illustrated in the "Sold American" booklet by two opposing pages. On the one side, headed "The Commodities We Buy From You," is a list of more than eighty varied classifications, ranging from Adhesives and Automobile Accessories to Trays and Uniforms. On the opposite page, entitled "The Products We Offer the Public," is a list of more than a hundred of the company's well-known brands of cigarettes, cigars, smoking and chewing tobaccos.

That mutual interest is exemplified also in the stated policy of the department, often quoted:

"Politeness and fair practice should be the foreword in dealing with the suppliers. Remember courtesy is a builder of good will. Everyone that you come in contact with is a potential consumer. Consequently, he should be given every consideration. *Buy Only Quality.*"

Mr. Boylan amplified this statement in discussing with the writer the fundamental policies and point of view which he constantly instills in his buying staff. He says:

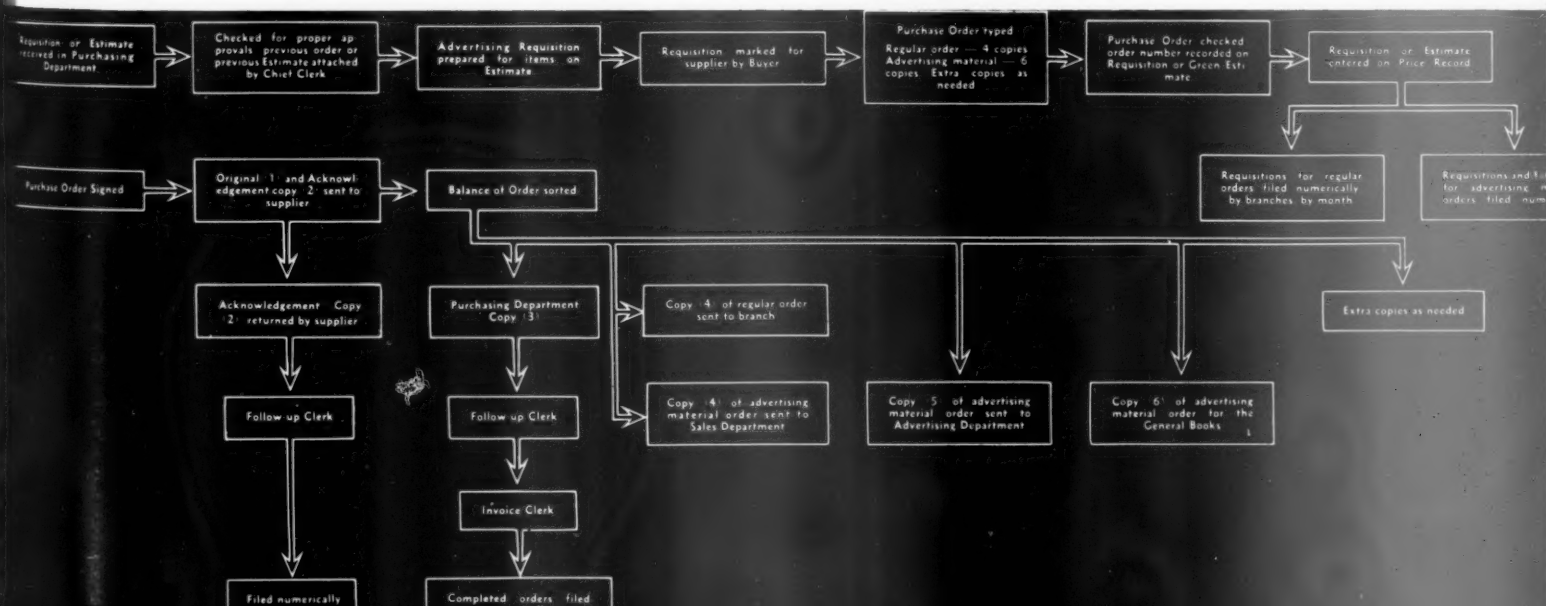
"We never attempt to beat our suppliers down. On the contrary, it is this company's policy--and I have found it to be a most successful one for our business--to urge that our suppliers make a fair profit on the product they sell to us. Naturally, we don't propose to pay more for an article of a given quality than the other man pays. We can not afford to pay more in making our purchases than our competitor pays. But the basis of our business lies in our slogan, "Quality of Product is Essential to *Continuing Success*," and with that in mind, experience has taught us that we are better served in every respect when our supplier, in his turn, makes a fair profit on the articles that he sells to us.

"You see, we are not in business just for a day or a year. We have been in business a long time, we have been here at '111' a long time and we expect to be here a longer time. The result of this policy over the years is that our suppliers look upon us to a degree as being their partners. They feel that they can always get fair treatment from our company, and in turn they wish to show appreciation of that fair treatment. This policy of live and let live has brought us many an advantage. Frequently a supplier, because of this relationship which has been developed over the years, will call our attention to some condition or trend in his industry or market which redounds greatly to our interest. Our object is and will continue to be an expression of an effort to establish a relationship with all people who supply us with merchandise, whereby our fair dealing is recognized. That policy adds to our company's good will. It is a long view purchasing policy which we feel is infinitely more to our advantage than any immediate profit we might secure from too sharp trading."

Development Work

Working closely with suppliers in the cooperative spirit made possible by these relationships, the department has been enabled to make many substantial and

FLOW CHART OF REQUISITIONS, ESTIMATES, PURCHASE ORDERS

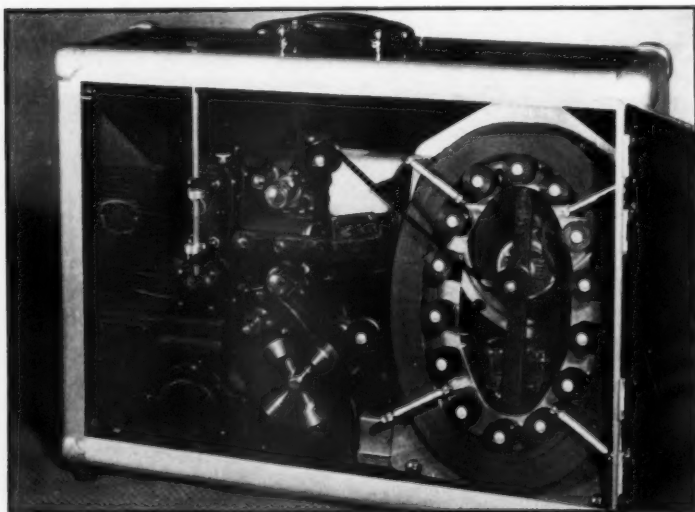




The "Quality" slogan is prominently displayed in the company's plants and offices, and printed on purchase orders, as a constant reminder to buyers, suppliers, and workers.

unusual contributions to efficient company operation through the development of better products and better ways of doing things. These projects, many of which were initiated by members of the purchasing staff, and which are carefully followed through successive stages of development by Buyers assigned to that work, include technical devices, specialty items, new materials, and standard items of supply in daily use at the plants, where the savings and advantages are multiplied many times each year. A couple of examples from the development file will graphically illustrate some of the accomplishments arising from a purchasing philosophy which looks beyond the immediate requisition and seeks the best possible answer to the fundamental need.

About four years ago the sales division conceived the idea of a phonographic demonstration unit which would enable the salesmen to present, in a striking and standard manner, the company's promotional story, tied in with the broadcast advertising program. The portable phonographs then available, however, were quite inadequate to convey the desired impression, and the Purchasing Department went to work to develop an instrument which would do the job. A small manufacturer undertook the production of this new



This portable "talkie" machine is carrying the story of "Lucky Strike" quality to dealers in all parts of the country —another product developed through effective cooperation between the Purchasing Department and the advertising and sales organizations of the company, and with suppliers.

REQUISITION FORM

TO: PURCHASING DEPARTMENT
The American Tobacco Company

ACCOUNT CHARGED: _____

DATE: _____

PURCHASING DEPARTMENT TO INDICATE BY (X) HERE IF ROUTING IS REQUIRED ☐

REQUISITION NUMBER: _____

PURCHASE ORDER NO.: _____

PURCHASE ORDER CHECKED BY: _____

ROUTING: FROM _____ TO _____

SHIP BY: _____

PARCEL POST ☐ FREIGHT ☐ EXPRESS ☐

NOT LATER THAN: _____

19 _____

UNLESS ITEMS ARE CORRELATED ENTER ONLY ONE ITEM ON THIS REQUISITION. ALWAYS FURNISH COMPLETE SPECIFICATIONS.

SPACE BELOW FOR USE BY PURCHASING DEPARTMENT ONLY

PRICE: _____

DISCOUNT: _____

TERMS: _____

F.O.B.: _____

SUPPLIER: _____

ADDRESS: _____

SPACE BELOW TO BE FILLED IN BY BRANCH OR DIVISION

PREVIOUS ORDER NUMBER, DATE AND SUPPLIER: _____

AMOUNT USED LAST 3 MONTHS

MONTH	QUANTITY
_____	_____
_____	_____
_____	_____

ON HAND: _____

IN TRANSIT: _____

DUE ON PREVIOUS ORDERS: _____

BRANCH: _____

COMPANY: _____

BY: _____

6.10. 1987



PLEASE
Use **THIS FORM** only for reply to
PURCHASING DEPARTMENT.
Retain duplicate for your files.

QUOTATIONS MUST BE
IN THIS OFFICE BY _____

QUALITY OF PRODUCT IS ESSENTIAL TO CONTINUING SUCCESS.

RICHARD J. BOYLAN
Director of Purchases


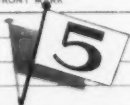
YEN	VENDOR	DESCRIPTION OR REMARKS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

ARTICLE

DATED,

TERMS _____ Signed _____

BID WILL NOT BE CONSIDERED UNLESS ALL INFORMATION REQUESTED

		The American Tobacco Company <small>INCORPORATED</small>				SPECIAL NOTICE		
		BRANCH OR DEPARTMENT COPY				INVOICE WILL NOT BE PAID UNLESS INSTRUCTIONS AND CONDITIONS ON REVERSE SIDE ARE COMPLIED WITH.		
PURCHASE ORDER	B	-	800					193
SHIPMENT TO BE MADE NOT LATER THAN _____		193	VIA _____					
TO _____								
QUANTITY	STYLE P.K.G.	BRAND	FRONT MARK	GRADE NO.	THIS SPACE TO BE LEFT BLANK			
								
			THIS REPORT TO BE MAILED IN DUPLICATE EACH MONDAY		DESTINATION _____		FACTORY No. _____	
DEPARTMENT								
NW WEEK OF _____								
CAR INITIAL AND NUMBER	APPROVED BY PURCHASING DEPT.		DATE APPROVED					

WEEKLY REPORT TO PURCHASING DEPARTMENT

WITH SAMPLES OF WRAPPING MATERIALS RECEIVED DURING WEEK OF

SAMPLE NO.	COMMODITY	SUPPLIER	ORDER NUMBER	DATE RECEIVED	CAR INITIAL AND NUMBER	APPROVED BY PURCHASING DEPT.	DATE APPROVED

BRANCH



1941

VU

The American
 111 FIFTH AVENUE

PURCHASE ORDER NUMBER K 2554

SHIP NOT LATER THAN
TO _____

The American Indian Company

111 FIFTH AVENUE NEW YORK, N. Y.

SPECIAL NOTICE

INVOICE WILL NOT BE RECD
UNLESS INSTRUCTIONS AND
CONDITIONS ON REVERSE
SIDE OF THIS ORDER ARE
COMPLIED WITH

PURCHASE ORDER NUMBER K 2554

SHIP NOT LATER THAN 1941 VIA

- delayed deliveries; it is printed in red as follows: "When you acknowledged our order No. . . . you agreed shipment would be made as indicated herein. We are anticipating shipment of this material accordingly. If shipment can not be made as promised, advise us promptly stating definite date when it will be shipped and reason for delay, using space below. Service—Quality—Reliability—reduces sales resistance."

- 5—A special order form is used for convenience in purchasing cigar boxes. This form is filled in at the plant for which the boxes are to be purchased.

- 6—A weekly report is made to the purchasing department by each plant, listing all wrapping materials received during the week, each shipment identified by sample number for approval.

ness, by demonstrating the possibilities of tone and design commensurate with the demands of the modern music-loving public.

Within the past few months a further step has been taken. The phonographic demonstration unit has been replaced by a portable "talkie" motion picture unit, the first of its kind, and again Advertising, Sales, and Purchasing Departments cooperated in developing suitable equipment to realize the idea. It has been accomplished by working with engineers of several of the most progressive manufacturers of this type of equipment. The result is a completely self-contained unit weighing only thirty-five pounds. It makes possible a standard demonstration, superlative in pictorial and tone quality, embodying portions of the radio programs, "The Story of Lucky Strike" which was featured for two years at the New York World's Fair, and the company's basic message of quality. Furthermore, it is exceedingly simple to operate and is practically foolproof. The de-



The old type of hoghead was heavy and cumbersome, awkward to handle and bulky to store.



Here are the pre-assembled staves for 100 hogheads of the new type, stored flat in little space.



Assembly and disassembly are simple operations, and the container is ready for immediate re-use.

Easy to handle and easy to store, the new hogheads contribute greatly to production economies.

partment takes particular pride in the fact that operating difficulties have been at a minimum throughout the years since these dramatized presentations have been in use.

Designing a Hoghead

Somewhat more prosaic, but similarly significant in the promotion of efficiency—this time in manufacturing operations—is the development of a new type hoghead for the storing and aging of tobacco during the two to three year period prior to its use. The requirements of these containers are exacting. They must be capable of holding half a ton of tobacco, and must withstand certain elements without warping or shrinking. Traditionally, the design has been that of a gigantic barrel, composed of staves, heads and bands—cumbersome in use, heavy to handle, and bulky for storage. In contrast to that equipment, which had little but tradition to recommend it, the ideal container would be one which could be pre-assembled yet could be shipped and stored flat, which would cut down weight and still do the job.

Again it was a project in cooperation. The manufacturing and leaf divisions had their ideas and knew the strict performance requirements. The supplier analyzed and experimented with design and construction methods. The Purchasing Department, working closely with both, sought out all available materials and measured economies of cost and use, contacting the supplier at every stage of the process. It required three years of intensive research, experiment and test to find a satisfactory answer. Many kinds of wood from different sections of the country were tried, exhaustively tested for weight, strength, and tendency to warp or shrink. New methods of reinforcement were devised to eliminate the use of nails and to facilitate assembly and dismantling. Hundreds of hogheads were made by hand during the experimental period and put through the test of actual use. Finally a material and a design emerged which met every requirement. Then special machinery and equipment had to be designed and built to produce them efficiently in the necessary quantity.

Another very practical accomplishment had been achieved by far-sighted purchasing and close cooperation with departments within the company, and by an intimate cooperation with suppliers made possible by the right kind of trade relations. These policies, which are basic in the conception of purchasing at The American Tobacco Company, do pay dividends—consistently, and far in excess of a policy which regards purchasing merely as a process of issuing orders for material.



At the New York World's Fair, this unit of "Offices at Work" in the Business Systems Building released an average of 500,000 duplicated pages per week, including contracts and specifications for construction, daily programs, news releases, ruled forms, directories and bulletins.

By G. H. MILLER, Jr.



OFFICE REPRODUCTION SERVICE

The first step toward efficiency in office duplicating is to select the process best suited to the job

NEARLY every organization, whether it be commercial, educational, fraternal, or religious, needs some kind of reproduction service. The mere preparation of carbon copies on a typewriter constitutes reproduction in a limited sense. Beyond that there are all types of printing and duplicating which are required from time to time by the modern office. Form letters, ruled forms, bulletins, booklets, reports, advertising, posters, price lists, letterheads—these are just a few of the many materials for which the office requires printing or duplicating of some kind.

Whether outside printing or duplicating within the office is to be used in any given case depends, by and large, on the following factors:

1. Character of work to be reproduced
 - a) Size
 - b) Half-tones
 - c) Die-cutting
 - d) Trick folds
 - e) Confidential data
2. Time
3. Cost
 - a) Length of run
 - b) Copy
 - c) Facilities available in office

What must be considered when weighing these factors will be evident when we have discussed the vari-

ous office duplicating processes available and their limitations. But let's take some examples. Suppose we wanted to reproduce 1,000 copies of a single page typewritten bulletin. Because of the cost involved in setting type on such a bulletin, or of having a typewritten original photographed for offset lithography, this is obviously a job for the office duplicator, provided adequate facilities are available in the office. But on the other hand suppose that this same bulletin contained a photograph of the president of the company. Then, unless office offset duplicating equipment were available, it would be necessary to have the job printed by an outside agency.

Take a 100-copy 10-page confidential report as another example. Three things put this job on the office duplicator provided one is available. The first and most obvious reason is the number of copies required. Outside printing of any kind would be much too expensive for such a short run. Secondly, the "confidential" requirement may be met much more easily if the original copy never leaves the office. And finally, if the report is confidential the chances are it is vitally important that it be completely accurate. The fewer hands that the report passes through in being office duplicated contributes greatly to detailed accuracy.

However, there is one factor in connection with this confidential report that we have not considered.

That is size. A 25" x 38" sheet, for example, would necessarily be outside the scope of office duplicating and could be handled only on a large printing press.

Finally, there is the element of time. In most cases any job that meets the other requirements of the particular office duplicating process available may be turned out much more quickly in the office than by an outside printer.

Note that in every case this analysis has no meaning unless office duplicating equipment is available in the office. This is an obvious point of course. But upon applying these considerations to office reproduction needs it may be discovered that investment in office duplicating equipment of some kind would be advisable.

Duplicating Processes Available to the Office

Office duplicating processes fall into two classifications: (1) those which are adaptations of printing processes; and (2) those which are generally considered independent of the printing processes. In order to

know what these various processes can do it is necessary to know what they are.

Hektograph

There are two types of hektograph duplicating, each of which is considered exclusively an office duplicating process. These are known as "gelatin" and "liquid or spirit". Both derive their reproductive factors from the same chemical phenomenon—namely, the ability of a powerfully concentrated aniline dye-stuff to transmit many impressions to paper without continuous re-inking.

The gelatin process uses the powers of the aniline dye by impregnating it in a gelatin base. This is done by pressing a hektograph ink image, which is on a sheet of paper, against the gelatin base. In order to obtain copies of this original it is simply necessary to press blank sheets of paper against the gelatin-held image for a moment. As many as 100 copies may be obtained by this method.

Two types of duplicators are available for this

TABLE 1. CHARACTERISTICS OF VARIOUS REPRODUCTION PROCESSES

	HEKTOGRAPH	STENCIL	LETTERPRESS	OFFSET
TYPE OF IMAGE	Ordinarily purple; inclined to be weak, particularly after the first 10 or 20 copies; has a tendency to fade when exposed to light.	Ordinarily black, but vivid primary colors are available; permanent; oil base inks smudge slightly under hard rubbing, water base inks do not.	Ordinarily black, though other colored ribbons and inks are available; permanent; ordinarily does not smudge nor offset. Ribbon must be watched to insure against light and streaked impressions.	Practically any of the primary colors may be used by changing inks; permanent; ordinarily does not smudge nor offset. Ink and moisture distribution must be watched to avoid spotty copy.
IMPRESSION PAPER	Almost invariably a hard-surfaced non-absorbent paper, usually chemically treated specifically for this process.	Preferably medium sizing, lint-free; almost any kind and weight can be used, however, with proper handling. Minimum size 3 x 5, maximum 8½ x 16 inches; special equipment permits paper sizes up to 17 x 22 inches.	Practically any paper which can be fed through the machine can be used.	Hard-sized, smooth surface offset stock is preferable. Other papers may be used, however, when properly handled.
NUMBER OF COPIES	Up to 100 for gelatin, 200 for spirit. However, weakness of image in latter half of run may cut down these maximums from a practical standpoint. Various colors give different maximums: purple greatest, black least.	12 to 10,000, depending on type of stencil used, character of copy, and handling.	Practically unlimited.	300 to 30,000, depending on type of plate, character of copy, atmospheric conditions, and handling.
OPERATION	Very simple, both in preparation of original and in duplicator operation. Preparation may be messy unless expertly handled, however.	Fundamentally simple; technical training not required, but care and experience greatly affect quality of work.	Special training is desirable for Multigraph and Dupligrph; not essential for Automatic Typewriter. Manual typesetting for Multigraph is slow; automatic typesetting much faster and easier. Dupligrph plate preparation is slow.	Technical training and aptitude are practically essential.
DUPLICATOR SPEED	Gelatin—10 to 40 copies per minute; Spirit—10 to 65 copies per minute.	10 to 250 copies per minute.	Multigraph—10 to 90 copies per minute; Dupligrph—5 to 50 copies per minute; Automatic Typewriter—up to 750 characters per minute.	10 to 90 copies per minute.

Duplicating department at Montgomery Ward & Co., Chicago, a real workshop which turns out thousands of duplicated copies every day. Equipment shown in the foreground is for stencil duplicating. That in the rear is for letterpress work. There are also two gelatin process machines, not shown in this view.



process. The most commonly used is a flat-bed machine which takes paper sizes up to 14" x 17". The other type is a rotary duplicator which uses a gelatin blanket. This type is usually faster to operate than the flat-bed, but it is limited in paper size to 8½" x 14".

The gelatin process is most widely used for the reproduction of a few copies of typewritten material. The originals for this are typed on a standard typewriter using a special hektograph ribbon. However, by using special hektograph pencils and inks, line drawings and handwriting in various colors may be reproduced.

The liquid or spirit process is sometimes called "direct" hektograph duplicating because the copies are taken directly from the paper original. Because of this fact it is necessary that the original be prepared in reverse so that the final duplicated copy will be a positive—i.e. readable. This is done by using a hektograph carbon on the reverse side of the sheet when typing, drawing, or writing.

By applying to the original an extremely light wash of some rapidly evaporating spirit such as alcohol, it is possible to transfer an image from the hektograph original to blank paper just as is done in the gelatin process. Up to two hundred copies may be obtained in this way. The type of machine used for spirit duplicating is almost invariably a rotary.

Stencil

The stencil duplicating process—most widely used of all office reproduction methods—is also considered an exclusively office duplicating process. At least, the best known variation of it is.

The mimeograph stencil sheet is a very porous, long-fibered tissue sheet coated with a pliable water-tight but impressionable composition. By making openings in the coating, liquid ink will pass through to paper held against the back of the stencil and will deposit an image exactly like the openings.

In the first stencil duplicator, the stencil was simply laid flat on top of a sheet of paper and an ink roller was passed over it—an entirely manual function. But today tells a highly automatic story. Except for a negligible percentage, the stencil duplicators in use today are of the rotary type. The sheet of impression paper is carried between the cylinder-mounted stencil and an impression roller to receive the stenciled

image. An ink pad lying between the stencil and the cylinder supplies the ink.

Of course, before all this can take place the stencil must be prepared. This can be done by typing or drawing or shading or handwriting or die-impressing, or even processing photochemically. Or it can mean a combination of all of these. The job prescribes the method.

Die-impressing is a most helpful stencil preparation technique. There are many cases where a ruled form or bulletin heading—such as the daily price list or a market letter—is used frequently in conjunction with periodically changing information. To facilitate the reproduction of such material stencil die-impression can be used. This simply involves the preparation of a large quantity of stencils using a metal die as the stencilizing medium. Thus in the case of the daily price list the die-impressed stencil contains such unchanging data as title, column headings, rules, etc. To this ready-to-use stencil sheet, then, are added the daily price figures with either a typewriter or stylus. And the filled-in price list is run off on the stencil duplicator.

The importance and use of *photochemical stencilization* are growing by leaps and bounds. Its principal virtue lies in its ability to reproduce easily, economically, and accurately fine-lined and complicated drawings, charts and diagrams. The user may employ this method in any of three ways: (1) by preparing his own drawings and stencils on photochemical stencil equipment in his own office, by a process similar to blueprinting; (2) by preparing his own drawings and having stencils prepared for him by the stencil duplicating supply manufacturer for him on a job basis; and (3) by purchasing ready-to-use photochemical stencils (known as "insets") which are of a general nature adaptable to illustration of many subjects.

Letterpress

Letterpress duplicating includes the processes which are adaptations of printing, i.e., reproduction from raised characters. A small rotary machine for which movable types are set on a drum, a flat-bed device using an embossed metal plate, and an automatic typewriter make up the three principal types of letterpress adaptations used in the office.

The first of these (Multigraph) is the most widely used. The drum is slotted horizontally so that specially

TABLE II. COST FACTORS IN OFFICE DUPLICATING

- 1—Character of copy.
- 2—Number of copies required.
- 3—Equipment required.
- 4—Supplies used, including impression paper.
- 5—Time spent in preparing the original (labor).
- 6—Operating time (labor).
- 7—Overhead.

designed types may be mounted on it. The type is set by hand or by automatic typesetters which operate with a typewriter keyboard.

Many different type faces can be used with this equipment. Standard pica or elite typewriter type is usually used, because the biggest single use of the Multigraph is the reproduction of form letters. Illustrated material may be reproduced by this method too. To do this, special cuts must be made just as they are made for standard letterpress printing.

These machines can be either hand-fed or equipped with automatic feeds. Inking is accomplished in one of two ways: from type plates through a large inked ribbon, thus closely approximating typewritten work; or an ink roller fed by a trough filled with a paste ink. Different colors can be run individually by changing the ribbon or ink.

This method is particularly satisfactory if the copies required number several thousand. Matching a typewritten salutation with the body of the letter can be done fairly well.

The machine used in the second office letterpress method is called a Dupligraph. It is intended for the reproduction of personalized form letters. What it amounts to is an enlarged form of the Addressograph, printing not only the address and salutation but the body of the letter itself from embossed metal plates through a large inked ribbon. The large metal plate containing the letter remains fixed while address plates are changed automatically for each impression.

The Automatic Typewriter does the same job as the Dupligraph in a different way. The form letter is typed on a machine called a perforator, that makes a roll similar to a player piano roll. This roll is then attached to the automatic typewriter. To operate it, the operator inserts a sheet of paper in the typewriter, types the date and salutation and "plays" the roll, thereby automatically typing the body of the letter at a speed of 750 characters per minute. The advantage of this machine over the Dupligraph is that it can be stopped automatically at the proper place to fill in any special material needed. The disadvantage is that even 750 characters per minute can't compete in speed with the entire letter in a single impression.

Offset Lithography

Offset lithography, both as a printing and a duplicating art, has made rapid progress in the last few years. In printing it has established the planographic principle on an equal footing with letterpress. In office duplicating it has made possible the adaptation of this principle to the needs of the modern office.

Basically, lithography (or planography) reproduces copy by making some of the surface ink-resisting

while leaving the rest of it with an attraction for ink. Since water repels, and greasy substances attract, any "grease ink," some variations of these two materials are used in preparing the printing plate.

Offset lithography employs a cylindrical plate and a cylindrical rubber blanket. The positive image on the printing plate is offset or printed onto the rubber blanket and subsequently from the blanket to the sheet of paper. This offset principle permits speeds and economy hitherto impossible for lithography. The

TABLE III. FACTORS IN SELECTION OF DUPLICATING PROCESS

- 1—Character of copy to be duplicated.
- 2—Number of copies required.
- 3—Frequency and number of re-runs.
- 4—Time.
- 5—Appearance required in the duplicated copy to do its job effectively.
- 6—Permanence and durability of duplicated copy.
- 7—Cost.

office offset duplicator is in reality a miniature offset press. The smallest handles paper sizes up to 8½ x 14 inches; other machines run as large as 17 x 22 inches.

The original plates for this process may be prepared in two ways: manually and photographically. Either a laminated paper or a flexible metal plate can be used for manual preparation. These may be typed in the typewriter using a special grease ribbon and preferably a noiseless typewriter. They also may be drawn or lettered on, using special grease pencils.

Selecting the Process

Duplicating costs are highly individual. They are affected by so many different factors that it is almost impossible to generalize on them. They must be calculated in the light of each user's needs and experience.

In figuring costs of any kind all items must be taken into account if the result is to be accurate. Some factors which should be considered in such an analysis are shown in Table II.

Cost alone, of course, should never be the deciding factor in selecting a duplicating process. It must be considered in the light of job requirements, quality, and convenience. Small savings, for instance, obtained by using one process rather than another better suited to the quality required by the job at hand would become sheer waste if the finished copy were such that it would not carry out its purpose effectively.

This may mean, of course, that more than one duplicating process should be available. When this is the case it is essential to highest efficiency that each job be assigned to the process best suited to the job's requirements. As a guide to proper selection, all factors listed in Table III should be carefully weighed.

By keeping these factors in mind when selecting the duplicating process or processes to meet your needs, and by accumulating facts on all processes, rather than the first one that comes to your attention alone, you can make office duplicating a valuable aid to your office operation.



COME AND GET IT!

FOOD FOR DEFENSE

Organization and policies for the purchase of food requirements of a larger Army.

By DOUGLAS MacKEACHIE

Assistant to the Director
Division of Purchases
Office of Production Management

ON January 7 of this year, the National Defense effort moved into its second phase when the President created the new defense set-up—the Office of Production Management, with William S. Knudsen as Director General, Sidney Hillman as Associate Director General, and Secretary of War Stimson and Secretary of the Navy Knox as members. To this Office was given power to devise and execute all measures needful to accelerate the production and supply of needed materials, to plan the expansion of the necessary plant and facilities, and to coordinate the entire defense effort into one smoothly-working program.

Under the Office of Production Management there are three main subdivisions: the Division of Priorities, the Division of Production, and the Division of Purchases. These divisions do about what their names would imply. The Production Division sees to it that goods are produced in needed volume, and that the facilities necessary to produce them are made available. The Priorities Division is concerned with directing the flow of essential materials. If, for example, there simply is not in the country enough of some given commodity to meet all the demands being made by the

Army, the Navy, private industry and foreign purchasers, this division must determine where the need is greatest and how the available supply should be apportioned.

The Division of Purchases does not do the actual buying. That remains, as in the past, a function of the Army and the Navy, and very properly so. What this Division does is to advise and help our service chiefs in the execution of one of the greatest buying programs of all time. And an examination of the way this job is done in connection with the procurement of food will give a good idea of the kind of help which it is able to render. Its policies may be summarized as follows:

1. To assist and advise the services in obtaining needed supplies at the times and in the quantities required.
2. To assist them in obtaining these supplies at fair prices.
3. So to plan and time this procurement that it has the least impact on the civilian economy, always having in mind the post-emergency adjustment.
4. To plan distribution of orders for the maximum re-employment of labor.

MORE →

Until comparatively recently, the United States Army's food buying problem was very simple. An army of no more than 150,000 men, split up into a great number of small units, bought its food in small quantities on an over-the-counter basis. The camp quartermaster went to the market personally to do his own buying. The amounts he bought varied little from month to month. The nation's ordinary peacetime distribution facilities could handle his requirements without the least disturbance. What the Army quartermaster bought—the 130-odd Army quartermasters, scattered all over the country—had negligible effect on food movements, food prices, or food marketing and distributing arrangements.

Almost overnight this picture has become profoundly different. Within a very short time the Army will be buying food for a million and a half men, spending approximately \$750,000 a day in the process, to which must be added the expanded requirements of the Navy, the Marine Corps, and the Civilian Conservation Corps. Food orders that used to represent less-than-carload shipments will call for the shipment of many solid carloads. Some of the camps will require daily as much food as a small city. The Army will be about the largest single buyer of foodstuffs in America.

Obviously, such an expansion demands a comparable revision in the Army's method of buying its foodstuffs. The plan which I will describe is not a new plan. After a considerable period of trial and error, its basic principles were put into effect during the World War, and the plan commonly known as the M-day plan, which was constructed from our experience in the World War, calls for the general application of these principles.

Foremost is the change made necessary by the possible effect of this great buying program on civilian food markets. In the last war, prices on staple foodstuffs doubled and even tripled. No one seemed especially worried about it at the time—except, of course, the consumer and business men who got caught in the middle—and the whole business of skyrocketing food prices and shortages was regarded as an inevitable outgrowth of the war.

But all of that could have been avoided. It is going to be avoided this time. But *if* it is to be avoided, we must have the cooperation of the merchants of America—cooperation which, I am happy to say, has already been given loyally and in abundant measure.

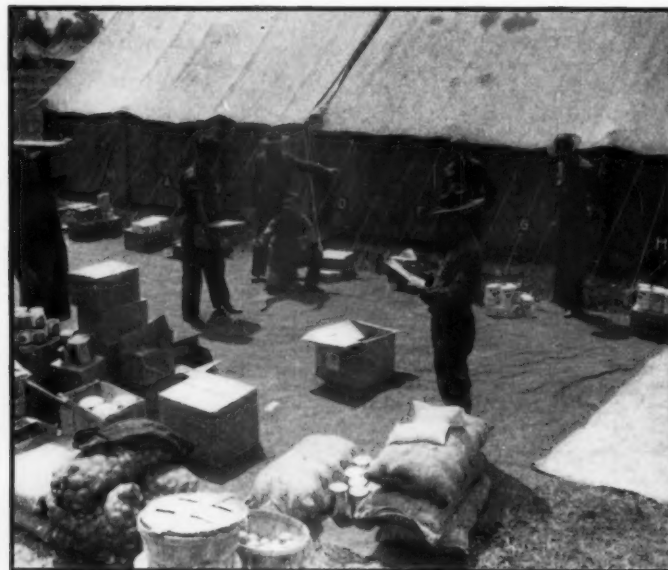
It is perfectly clear that an army of one and a half million men, or two million men, cannot buy its food



LEFT: Perishable food supplies such as milk present a special problem of local procurement.

LOWER LEFT: Feeding a million and a half men, at a cost of half a million dollars a day, involves details of purchasing, distribution and accounting.

BELOW: The modern field kitchen, equipped with gasoline ranges, is a notable advance over previous commissary arrangements.



Photos by U. S. Army Signal Corps

In private life, Mr. MacKeachie is Director of Purchases, Eastern Division, The Great Atlantic & Pacific Tea Co. In the service of national defense, he is in charge of food purchases, Office of Production Management

on the same basis used by an army of 100,000 men. To do so would be to disrupt all food markets, utterly overtax local distributors and handlers, and invite not merely shortages and price increases but actual stoppages and shortages in the delivery of foodstuffs to the camps.

Under the expanded procurement program, Army food purchases will be broken into two classifications—perishables and non-perishables. Each will be handled differently.

For the perishables there will be set up zone purchasing offices, strategically located throughout the country with regard to adequate markets and centers of troop population. This is necessary, in place of letting each camp buy its own perishables separately and independently, because army camps are rarely located near adequate sources of supply. Local marketing facilities have been seriously over-taxed; where two or more camps shared one marketing area, there has been competitive bidding for supplies with resultant price increases not only to the Army but to the civilian population. In addition, temporary and artificial shortages have been caused by the placing of heavy volume orders.

In recent months a number of instances of this kind actually did develop. Consumers complained bitterly, and rightly so. Perishables which were actually in surplus did not find their way in proper quantities to the mess tables of the troops, and producers did not receive full benefits of the additional outlets. Such conditions can and must be avoided.

The buying of non-perishables will be centralized at three points—New York, Chicago, and San Francisco. The New York office will buy sugar, coffee, tea, spices, and other manufactured items. In Chicago will be bought canned vegetables, canned meats, cereal, flour and similar items produced on a nation-wide basis. The San Francisco office will buy canned and dried fruits, salmon, etc.

Speculation is Taboo

Competitive bidding is the keystone of the program. Inspection will be provided at the source, wherever practical, rather than at the delivery point. This is to the advantage of both the Government and the supplier, since it eliminates costly rejections and insures the army of an adequate and uninterrupted flow of goods of proper quality. Contract requirements are being simplified for the benefit of the bidders. Specifications are being revised to meet ordinary commercial practices and standards, and a wider latitude on sizes will be given in invitations to bid. This will benefit the Government by providing a wider market and lessening the chances of speculation or shortages. It will give everyone a chance to bid, instead of restricting the bidding to concerns which specialize in the narrow lines formerly called for. Invitations will call for a delivered basis to the camps throughout the country, making it possible for a vendor to bid on any or all the quantities called for, depending on his location, thus widening the market.

There is no room in this program for speculation. The activities of bid brokers and speculators in the



Photo by Harris & Ewing

Douglas MacKeachie

past have seriously affected the supply and price of various items of food. In one instance, for example, the options outstanding in the hands of speculators covered four times the quantity called for in the Government contract, with the natural result that more than 50% of the goods were sold at an advance of 100% above the market price which prevailed at the time the invitation to bid was issued.

This, of course, is no reflection on the legitimate dealer who bids on goods he actually owns, but only on the man who tries to profiteer at the expense of the Government. To carry on a sound procurement program we must adhere strictly to both the letter and the spirit of the public contracts law, which permits only manufacturers and regular dealers to bid on contracts. The practice of bidding on goods which the dealer does not own is a speculative evil which is bound to be harmful and which will not be tolerated.

Opportunity for All Suppliers

The program, which sticks to the principles of open competitive bidding, seeks to maintain a free market, and strives to make the least possible impact on civilian buying, does not take away from anyone the ability to sell food to the Government. It widens the market instead of narrowing it. If a concern is able to perform the services and furnish the goods in the quantities desired, on a competitive price basis, its chance for business is as good as anyone's. Any man performing a regular and legitimate function in the field of distribution may continue to play that part.

On a number of staple items, the quantities involved

Continued on page 131

... from IDEA to PRACTICAL

Technical
Purchasing
Market

RESEARCH

are necessary before
a new product can be
offered to the public

A typical example from the American Optical Company



IDEA MAN—Designer W. H. Lehmborg works out the project—a respirator weighing only an ounce and a half, comfortable enough for general acceptance and use, not interfering with normal respiration, yet efficient enough to filter out air borne bacteria approximately one micron ($1/25,000$ of an inch) in size, harmful dust (five microns and less), and common pollen grains which cause hay fever and asthma (10 to 100 microns). Here he is using 25,000 volts of electricity to precipitate dust which has been pulled through the respirator. The dust concentration will then be counted under a microscope.

GUINEA PIG—Laboratory technician L. E. Litchfield tests the new device by spraying dust into the air. Whatever is breathed in through the mask is trapped in a glass impinger flask. Particles as small as a micron were effectively excluded. Not yet satisfied, he returns to the dust chamber and deliberately blows powdered bituminous coal into his face. Emerging, he looks like an imp from the infernal regions. The mask is removed, and though the general effect is that of an Iroquois brave on the war-path, he has demonstrated that the respiratory system is well protected.



PRODUCT

By G. P. BROCKWAY

Purchasing Manager

PURCHASING PROBLEM—The Purchasing Manager has followed the development closely from start to finish, for it is his responsibility to procure the materials for the test period and later for quantity production. First, we had to select a company to mold the intricate rubber face-piece according to our design. Then it was necessary to obtain samples of metal parts, headband, suitable filtering media, etc. After long and exhaustive tests, we were finally satisfied that we had found exactly what we wanted, and could place our orders for the raw materials. We consider it necessary in all new developments of this type, for our scientific department to work closely with the purchasing department. A clear picture of the materials needed is presented so that adequate sources of supply can be selected to war-



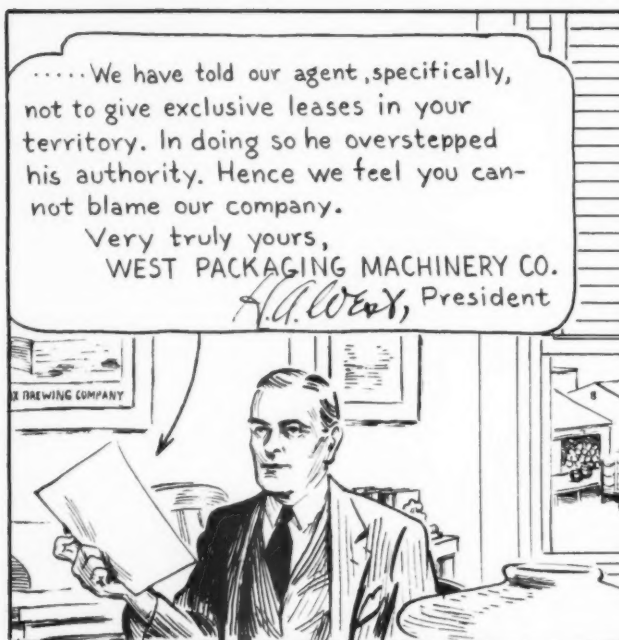
rant production on a large, economical scale. Obviously, if our scientific staff were to demand raw materials that are too expensive or difficult to procure, the development would be impractical from every point of view. Realizing this fact, long ago we established this close relationship and liaison between our development and purchasing departments.

SALES PROSPECTS—There would be no production without customers. But thanks to long and patient research, supported by further tests at the U. S. Bureau of Mines (which approved the respirator for protection against the inhalation of pneumoconiosis producing and nuisance dusts), the device has shown itself well adapted to a large and varied field of use. Here are four potential markets: industrial workers on jobs with a serious dust hazard, such as packing abrasive powders; the medical profession; millions of hay fever sufferers; and in the home.



PEN-POINTS ON PURCHASE LAW

BY H. H. SHIVELY, BABSON INSTITUTE



The Extent to Which the Purchasing Agent May Rely on the Representations of Salesmen

IN his buying, the purchasing executive deals with many agents of other companies. Necessarily, they make many representations to him. Some are affirmations regarding the goods or services they offer. Some are representations regarding the scope of their powers as agents.

Once the purchasing agent ascertains that a representative is a bona fide agent, he is justified in assuming that this person has the ordinary powers of such an agent. If it is generally the custom in the trade for companies to give exclusive leases

through their agents, the purchasing agent may properly rely on this custom. He does not have to probe for unusual or secret limitations on the scope of the agent's authority to make contracts.

The purchasing agent's hand would be strengthened, of course, if there had been previous dealings in which exclusive leases had been granted by the seller's agent and approved by the company he represented.

DETERMINATION OF PURCHASE QUANTITIES

By JOHN G. McLEAN

PART I

This paper won the First Prize of \$200 in the 1940 Students' Educational Contest for the Boffey Memorial Awards, sponsored by the National Association of Purchasing Agents. Mr. McLean is a student at the Graduate School of Business Administration, Harvard University.

Part II, developing the mathematical relationships for determining the most economical ordering quantities, will appear in the April issue.

IT is the purpose of this paper: (a) to analyze the problem of determining optimum purchase quantities, and (b) to suggest a quantitative approach to that problem which the purchasing agent may use to correlate his judgments regarding all the pertinent factors in the determination of the optimum quantity to buy.

Significance of the Problem

Scientific and exhaustive studies have been made and precise methods have been developed to assist the Purchasing Agent in the forecasting of prices, in the testing and inspection of materials to secure the desired quality, and to aid him in various other phases of his work. In the determination of purchase quantities, however, the Purchasing Agent has had to rely primarily on his judgment, his experience, and his intuition. More precise methods have not been developed in this area because the problem is such an intricate and complex one that it is difficult to appraise in quantitative terms and because it has been felt that the accurate determination of optimum purchase quantities was not of sufficient importance to warrant the use of more exact methods.

At the present time, however, it can be said with a good deal of justification that the determination of purchase quantities ranks among the most important of all the problems with which the Purchasing Agent is faced. The selection of purchase quantities is closely

related at all times to the financial position of a company, and the drastic effect of unwise inventory policies was conclusively demonstrated in the depressions of 1921 and 1932. Purchase quantity determination has another connection with the financial program of a company in its relationship to unit costs and in their effect on profit and loss statements.

The losses which develop when production is retarded because sufficient supplies are not available are so significant that the relationship between purchase quantities and the production program has always been clear. Another relationship between purchase quantity determination and the production program becomes apparent in the consideration that excess stocks at particular times may well restrict the introduction of new materials, new methods, and new products.

Price forecasting is generally regarded as one of the most important of the Purchasing Agent's functions. Price forecasts, however, are of value only when they are interpreted in terms of quantities to buy at particular times. In a sense, price forecasting is but a preliminary step in the determination of purchase quantities, which is of little significance unless the larger problem of quantity determination is treated with equal care and precision.

In short, it is apparent that a good part of the purchasing agent's judgment in several areas is finally manifested in his decisions regarding how much to buy at particular times. The problem of quantity determination, then, is one of prime importance, and as such it is worthy of a considerable share of the Purchasing Agent's time and attention.

The Optimum Purchase Quantity

HAVING recognized the importance of setting purchase quantities accurately, it is next desirable to determine as explicitly as is possible what constitutes the optimum quantity to buy.



One of the first criteria imposed on purchase quantities was that they should be sufficient to meet production requirements, and it cannot be denied that one of the primary responsibilities of the Purchasing Agent is to buy in such quantities and to maintain such stocks that production will go on without interruption. This criterion in itself, however, is not sufficient to describe the optimum purchase quantity. It is immediately apparent that after the Purchasing Agent has determined what stocks shall be maintained to meet production requirements, he still has the alternatives of buying small quantities frequently or large quantities infrequently.

All other things being equal, the logical choice between these two alternatives seems to lie in the selection of that quantity which will give the lowest unit cost. In this connection two sets of cost factors become apparent: those which favor small frequent purchases and those which favor large infrequent purchases. Among the former are such items as interest charges, deterioration costs, insurance expense, obsolescence, storage, etc., while among the latter are such elements as quantity discounts, purchasing expense, and freight discounts.

From these considerations it is clear that the problem of purchase quantities is one of balancing these two opposing sets of cost factors one against the other to arrive at that one quantity which will give the lowest unit cost.

It might be said, then, that the problem of meeting production requirements is one of maintaining adequate stocks, while the problem of determining the optimum quantity to buy is primarily one of selecting the most economical purchase quantity.

Factors Affecting the Economical Purchase Quantity

THE Purchasing Agent can balance effectively the opposing cost factors to arrive at the most economical purchase quantity only after he has carefully isolated all of those factors pertinent to the particular problem at hand and exercised his best judgment with respect to each one of them. Primary cost factors which are usually present include the following:

1. Quantity discounts: Quantity discounts are among the most obvious of the elements which tend to reduce unit costs as the size of the order increases. They are usually granted on the theory that the purchase of larger lots will reduce the manufacturing and distributing costs of the supplier. Generally, they are expressed in terms of a series of different prices which apply to quantity purchases within specified ranges. At other times, however, they may be expressed as a base price plus so much per unit. In any case, they are important factors which the Purchasing Agent must take into consideration in his determination of the economical purchase quantity.

2. Freight differentials: Quite often the unit cost of inward freight can be decreased by making purchases in large quantities. It is noted, however, that in certain special cases such as when the choice is between a carload lot and a carload and a half, the shipment of the larger quantity may increase rather than decrease unit freight costs. For convenience in making compara-

tive cost calculations, it is generally desirable to regard inward freight as a part of the purchase price.

3. Expense of procurement: Procurement costs may be regarded as all of the expenses incident to the procurement of a product from the time the requisition is written until the goods are received in stores. In this sense, procurement expense includes the cost of operating the purchase office, of writing forms and orders, of receiving and testing, etc. For a given rate of consumption, the purchase of larger quantities will tend to reduce the frequency of orders which, in turn, will have a favorable effect on procurement expenses. In other words, it might be said that every order which is put through by the purchasing office will involve certain costs, and for any given product it is reasonable to expect that these costs will be less on a unit basis for a large order than they will be for a small order.

4. Interest: In almost every decision he makes, the Purchasing Agent takes into consideration the total amount of money that will be involved. For a particular product with a given rate of consumption, the average amount of capital held in inventory will increase as the size of the purchase order increases. Similarly, the average length of time an article is kept in storage will increase as the size of the purchase quantity increases. For comparative purposes, the interest on funds held in inventory may be regarded as a cost of carrying stocks which will tend to offset some of the economies which may be obtained by the purchase of large quantities.

5. Deterioration: Most materials which are held in stock are subject to a certain amount of deterioration. This factor will vary in importance depending on the characteristics and particularly on the durability of the product. For a perishable product, it is likely to be one of the primary elements in the determination of purchase quantities. In any case, the degree of deterioration will usually depend on the time a product is kept in storage which, in turn, is related to the size of the purchase quantity.

6. Obsolescence: Changes are continually taking place in all phases of business activity, and as a result the danger of obsolescence is always present in some degree. Obsolescence may arise from the development of new products or methods, the discovery of new materials, style changes, etc. It is clear that the losses from obsolescence will increase with the length of time goods are kept in stock before being used, and these losses will constitute one of the disadvantages connected with purchasing in large quantities.

7. Insurance: In some cases it is necessary to insure inventories against loss by fire or some other element. Quite obviously, these insurance costs for a given product will increase as the purchase quantities and the average dollar value of the inventory increase.

8. Storage: Storage costs include expenses such as rent, light, taxes, heat, depreciation, etc., which are incurred in connection with the maintenance of warehouse space in which to store inventories. The significance of storage costs will vary depending on the

industry and the particular company in question. When a company has to hire a warehouse to store such products as tobacco, sugar, or cotton, storage costs are likely to become a very important factor in the determination of purchase quantities. On the other hand, if the company has an excess of storage space available at all times, storage costs will become correspondingly insignificant. In any case, the average quantity of goods kept in stock will be greater when purchases are made in large quantities than when they are made in small quantities at more frequent intervals. It follows that increased storage costs in many instances must be regarded as a disadvantage of purchasing in large quantities.

9. Price trends: The movement of market prices is a factor which will favor the purchase of large or small quantities depending on whether the trend is upward or downward. In times of rising prices, unit costs can be reduced by forward buying, while in times of falling prices unit costs can be reduced by more frequent purchases of small quantities. In short, the Purchasing Agent's judgment regarding future prices will have a direct effect on his decision regarding what quantities to buy at particular times.

10. Rate of consumption: As has already been noted, several of the foregoing cost factors (interest, deterioration, insurance, obsolescence, and storage) are closely related to the rate of consumption. That is, for a given quantity purchased these costs will be less for a high rate of consumption than for a low rate of consumption. Since changes in the rate of consumption do not affect all of the cost factors in the same degree, it is very important that a fairly accurate forecast of the rate of consumption should be made before a judgment is formed regarding the economical purchase quantity.

11. Purchase price: The quoted purchase price for a given article will have a direct relationship to the interest, deterioration, insurance, and obsolescence costs involved in carrying the product in stock. In its connection with these cost factors, the purchase price becomes pertinent in the determination of purchase quantities.

12. Miscellaneous: Finally, there are some miscellaneous and more or less intangible factors which, while not directly related to the unit costs of a particular purchase, may affect the purchase quantity through their relationship to the long run costs of doing business. Miscellaneous considerations of this type might include: the possibility that the same quality product may not be available at a later date; the possibility that more uniform quality may be obtained in large or small lots as the case may be; the possibility that factory waste may increase when large quantities are on hand; the possibility that the supplier will regard as more important and give better

service to an account that buys in a few large lots rather than in several small ones; and any other intangible factors that may develop in particular circumstances. In a great many cases, these miscellaneous factors will not enter into the picture at all, and in the cases where they do appear, they are likely to be secondary to the other cost factors in the problem.

From the foregoing discussion, we may list the factors that affect the economical purchase quantity of a given product.

1. Quantity discounts
2. Freight differentials
3. Procurement expense
4. Interest expense
5. Deterioration
6. Obsolescence
7. Insurance
8. Storage costs
9. Price trends
10. Rate of consumption
11. Purchase price
12. Miscellaneous and intangible

It is apparent that the first three of these elements tend to favor large quantity purchases, and the next five tend to favor small quantity purchases, while the last four may favor either large or small quantities in particular cases.

Appraisal of Cost Factors

IT IS clear that all of the foregoing cost factors will vary in importance, in their relationship to each other, and in their effect on the economical purchase quantity, depending on the industry, company, and product in question. For example, in a perishable goods industry the deterioration factor will become of prime importance, while in the machine tool industry it may sink into insignificance. In a style goods industry the obsolescence factor will demand more attention than in an industry where style changes are negligible. In an industry where profits are largely dependent on taking advantage of favorable movements in the prices of raw materials, the trend of the market prices will be of more importance than in an industry where raw material prices are fairly stable. In a company where warehouse space is readily available at a low cost, the storage factor will have less significance than in a company where warehouse space is restricted and costly.

The problem of determining the optimum purchase quantity, then, is not one that can be solved in terms of generalities, but one that must be solved for a particular product in relation to the particular set of circumstances in which it is being purchased.

In the purchase of a specific product, the purchasing agent's first task is to select those factors which are pertinent to the situation at hand. The next step requires the exercise of judgment on the part of the purchasing agent to determine the extent to which each of those factors will affect the decision as to the economical purchase quantity. Hav-

- | |
|-------------------------|
| 1. QUANTITY DISCOUNT |
| 2. FREIGHT DIFFERENTIAL |
| 3. PROCUREMENT EXPENSE |
| 4. INTEREST |
| 5. DETERIORATION |
| 6. OBSOLESCENCE |
| 7. INSURANCE |
| 8. STORAGE COST |
| 9. PRICE TREND |
| 10. RATE OF CONSUMPTION |
| 11. PRICE |
| 12. MISCELLANEOUS |



ing exercised his judgment with respect to each of the cost factors in the situation, however, the Purchasing Agent has still the problem of balancing and correlating his judgments on each of those factors to arrive at a single figure for the economical purchase quantity which will represent his judgment of the entire situation.

For example, assume that in the purchase of a particular product with a quoted price of \$1.00, the Purchasing Agent has come to the conclusion that: purchase discounts, freight differentials, and price trends will have no effect on his decision; the cost of placing the order will be about \$2.00; interest and insurance expense will be about 5% per year; deterioration and obsolescence together will be about 1% per year; storage costs will be about \$.05 per unit per year; the rate of consumption in the next few months will be close to 5,000 units per year; and there will be no miscellaneous factors of any importance which will have a bearing on the situation. The Purchasing Agent's next problem is to draw his judgments with respect to all of these factors together, to balance the costs favoring a small order against those favoring a large order, and to determine the actual number of units which will constitute the economical purchase quantity.

It is at this point that a quantitative approach to the problem and a few simple mathematical relationships become of value and importance.

Quantitative Methods

A VARIETY of mathematical formulae have been developed at one time or another for determining economical purchase quantities. For the most part, however, they have not been accepted by purchasing agents in any appreciable number. Explanation of this fact may be found in several considerations.

The primary reason why quantitative methods and mathematical formulae have not been more widely adopted lies in the fact that, although they have been developed with mathematical precision, their relationship and use in the problem of purchase quantity determination has not always been made clear. The tendency has been to regard these formulae as mechanistic procedures which will preclude the use of judgment by the Purchasing Agent and give an automatic solution to the problem of economical purchase quantities. As might well be expected, the Purchasing Agent has, reasonably enough, refused to accept them on that basis.

On the other hand, however, mathematical formulae which express the relationships existing between the cost factors affecting economical purchase quantities become exceedingly valuable and useful when they are regarded as a tool which the Purchasing Agent may use to draw together his judgments regarding the cost factors in a particular situation. (It has already been noted that several opposing factors enter into the decision as to the most economical quantity to buy. While the Purchasing Agent can exercise skilful judgment in treating these factors individually, it would be very difficult for even a highly trained mathematician to balance more than two of these cost factors against each other to determine that one quantity which will give the lowest unit cost without resorting to a mathematical treatment of some sort.)

It is within this area that the Purchasing Agent can make use of mathematical formulae to assist him in balancing his judgments regarding the factors which

favor large purchase quantities on the one hand against his judgments regarding the factors which favor small purchase quantities on the other hand. In this sense, quantitative methods restrict in no way the judgments exercised by the purchasing agent, but merely provide him with a tool which he can use in the analysis of those judgments.

Needless Complexity

A SECOND reason for the hesitancy of Purchasing Agents to make use of mathematical formulae in the determination of purchase quantities lies in the fact that the problem has been felt to be so complex and intricate and to contain so many intangible factors that it could not be appraised adequately in quantitative terms. In this connection, however, it must be remembered that when the Purchasing Agent finally writes out a purchase order, the figure he puts down for the number of units is a very definite quantity with no intangible modifications appended to it. As a result, it might well be argued that all of the factors which really affect the purchase quantity are capable of a quantitative expression of some sort.

In any case, the problem of determining economical purchase quantities is primarily one of balancing two opposing sets of cost factors one against the other, and it cannot be denied that the balancing of such factors as quantity discounts and freight differentials against such items as interest charges, storage charges, etc., may be carried out far more effectively if the Purchasing Agent makes an effort to express these elements on a quantitative basis than if he thinks of them only in abstract and intangible terms. In short, the problem is a difficult one to handle even on a quantitative basis, and the Purchasing Agent merely complicates and confuses it if he insists on regarding all the factors in it as intangible items that are incapable of concrete expression.

A third reason for the limited attention which has been given to quantitative methods may be attributed to the fact that the mathematical expressions which have been offered to the Purchasing Agent have been either needlessly complex and difficult to apply in actual practice, or they have been simple in structure but not comprehensive in scope. On the other hand, the Purchasing Agent has occasionally criticized these formulae unjustly on the grounds that they involve, in some cases, the use of numbers with ten or more decimal places, and hence indicate unwarranted refinements in the calculations. In reality, however, the degree of refinement or degree of accuracy introduced into the calculation depends entirely on the number of significant figures carried and has nothing to do with the number of decimal places involved.

Finally, an explanation of the lack of interest shown in quantitative methods may be found in the fact that the need for using them is very seldom one that is readily apparent. As a practical matter of fact, it would be very hard for a Purchasing Agent to tell whether he was purchasing in economical quantities or not unless he made use of a quantitative or mathematical analysis of some sort. In other words, the Purchasing Agent who does not make use of quantitative procedures has no direct means of appraising the adequacy of the methods he uses in determining purchase quantities, and hence his attention will not be easily drawn to new methods.

THE MARKET PLACE



First - of - the - month quotations
for carloads or mill shipments,
with comparative prices quoted
one month ago and one year ago

ACIDS

	Mar. 1 1940	Feb. 1 1941	Mar. 1 1941
Acetic, 28%, cwt.....	2.23	2.23	2.23
Muriatic, 18 deg., cwt.	1.50	1.50	1.50
Nitric, 36 deg., cwt.	5.00	5.00	5.00
Oxalic, Works, cwt.	10.75	10.75	10.75
Phenol, Works, cwt.	14.25	14.25	14.25
Sulphuric, 66 deg., ton	16.50	16.50	16.50



BUILDING MATERIALS

Brick, N. Y. dock, per M.....	12.00	12.00	12.00
Cement, f.o.b. plant, bbl.	2.15	2.15	2.15
Glass, single B, per box.....	2.70	2.70	2.70
Lime, per bbl.....	2.75	2.85	2.85
Nails, wire, per keg.....	2.55	2.55	2.55
Oak flooring, per M. ft.....	71.00	83.00	80.00 ↓
Southern pine, K.C., per M. ft..	24.27	29.06	31.69 ↑

CHEMICALS

Alcohol, denatured, gal.....	.31½	.32½	.32½
Alum, potash, cwt.....	3.75	3.75	3.75
Alumina Sulf., Comm., Works, cwt.	1.15	1.15	1.15
Ammonia, aqua, 26 deg., drums ....	.02¼	.02¼	.02¼
Arsenic			
White, cwt.	3.00	3.50	3.50
Red, cwt.	18.00	nom.	nom.
Barium			
Chloride, ton	77.00	77.00	77.00
Carbonate, ton	56.50	56.50	56.50
Benzol, pure, gal.....	.16	.14	.14
Borax, powd., ton	48.00	48.00	48.00
Chlorine, cwt.....	1.75	1.75	1.75
Formaldehyde, lb. ....	.05¼	.05¼	.05¼
Glycerine, drums, lb. ....	.12½	.12½	.12½
Lead acetate, white, broken, cwt.	11.00	11.00	11.00
Nickel sulphate			
Double ....	.13	.13	.13
Single ....	.13	.13	.13
Potash			
Caustic, solid ....	.06¼	.06¼	.06¼
Permanganate ....	.18½	.20	.20
Sal Ammoniac			
Gran. white, cwt.	4.50	4.50	4.50
Gran. gray, cwt.	5.75	5.75	5.75

	Mar. 1 1940	Feb. 1 1941	Mar. 1 1941
Saltpeter crystals .....	.081	.086	.086
Soda			
Ash, 58%, light, bulk, cwt... .	.90	.95	.95
Caustic, 76%, solid.....	2.30	2.30	2.30
Sal, Works, cwt.	1.10	1.10	1.10
Sodium			
Bicarbonate, cwt.	1.70	1.70	1.70
Tri-Sod. Phosphate, cwt....	2.25	2.25	2.35 ↑
Silicate, 60 deg., cwt.	1.65	1.65	1.65
Sulphur, Comm., cwt.....	2.60	1.60	1.60



COAL & COKE

Anthracite, stove, mines.....	6.25	6.25	6.25
Bituminous, Cleaf, mine run... .	2.60	2.50	2.50
Beehive Coke, Connellsville....	5.00	5.00	5.00
By-product Coke, Newark.....	11.38	11.85	11.85

FERTILIZERS

Muriate potash, 80-85%, per unit K20 .....	.53½	.53½	.53½
Sulphate potash, 90-95%, bags. .	36.25	36.25	36.25
Nitrate soda, bulk	27.00	27.00	27.00
Sulphate ammonia, dom. bulk.. .	28.00	29.00	29.00
Steamed bonemeal, 3 and 50, per ton	32.00	32.50	34.00 ↑

GRAINS

Barley, malting, bu.....	.69	.75½	.74¼ ↓
Corn, No. 3, yellow, bu.....	.56½	.60¼	.61¾ ↑
Oats, No. 2, white, bu.....	.43¼	.37½	.38 ↑
Rye, No. 2, Western, bu.....	.84¾	.62½	.60¾ ↓
Wheat, No. 2, hard winter, bu..	.96½	.77	.78¾ ↑
Flour, spring patents, 196 lbs... .	5.95	4.75	5.00 ↑

HIDES

Light native cows, lb.....	.13¼	.13	.12¾ ↓
Heavy native steers, lb.....	.13	.13½	.12½ ↓
Calfskins, 5-7 lbs. per skin....	1.80	1.75	1.60 ↓

	Mar. 1 1940	Feb. 1 1941	Mar. 1 1941
IRON & STEEL			
Pig iron, foundry No. 2.....	23.00	24.00	24.00
Pig iron, basic, valley.....	22.50	23.50	23.50
Cast iron pipe, New York.....	53.00	52.20	52.20
Forging billets, Pittsburgh base	40.00	40.00	40.00
Sheet bars, Pittsburgh base....	34.00	34.00	34.00
Wire rods, Pittsburgh base....	43.00	40.00	40.00
Cold rolled sheets, cwt., Pitts- burgh base.....	3.20	3.05	3.05
Hot rolled annealed sheets, cwt., Pittsburgh base.....	2.10	2.10	2.10
Cold rolled strips, cwt., Pitts- burgh base.....	2.95	2.80	2.80
Hot rolled strips, cwt., Pitts- burgh base.....	2.10	2.10	2.10
Tin plate, cwt., Pittsburgh base	5.00	5.00	5.00
Bars, cwt., Pittsburgh base....	2.10	2.15	2.15
Shapes, cwt., Pittsburgh base...	2.10	2.10	2.10
Bright wire, cwt., Pittsburgh base	2.60	2.60	2.60
Ground shafting, cwt., Pitts- burgh base.....	2.70	2.65	2.65
Rails, ton, Pittsburgh base.....	40.00	40.00	40.00
No. 1 heavy melting scrap, ton, Pittsburgh	17.00	21.00	21.00



METALS, NON-FERROUS

Aluminum, virgin ingots.....	.20	.17	.17
Antimony, American, spot.....	.14	.14	.14
Copper			
Electrolytic .....	.11½	.12	.12
Casting .....	.11¼	.12¼	.12¼
Lake .....	.11½	.12	.12
Chromium, 97%, spot.....	.85	.84	.84
Lead, E. St. Louis.....	.051	.0535	.055 ↑
Nickel, ingot .....	.35	.35	.35
Quicksilver, flask.....	180.00	167.00	173.00 ↑
Silver, bars, N. Y., per oz.....	.34¾	.34¾	.34¾
Tin, Straits, spot.....	.475	.5045	.51375 ↑
Zinc, E. St. Louis.....	.0575	.0725	.0725

METAL PRODUCTS

Copper, wire, bare, cwt.....	14.25	15.375	15.375
Yellow brass sheets, high.....	18.31	19.48	19.48

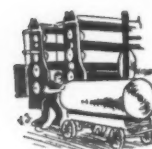


NAVAL STORES

Turpentine, gal. ....	.38½	.49½	.45¼ ↓
Rosin, Grade B, cwt.....	2.11	2.20	2.21 ↑

PAINT MATERIALS

White lead, dry, basic, car- bonate .....	.07	.07½	.07½
Carbon black .....	.0255	.03075	.03075
Shellac, orange .....	.16	.16	nom.
Linseed oil .....	.104	.097	.095 ↓



PAPER

News, roll, ton	50.00	50.00	50.00
Book, M. F., cwt.....	6.25	6.40	6.40
Wrapping, northern, cwt.....	5.00	5.25	5.25
Wrapping, southern, cwt.....	4.00	4.25	4.25
Wrapping, manila jute, cwt....	8.25	8.25	8.25
Chip board, No. 1, ton.....	45.00	30.00	40.00 ↑
Wood pulp, mech., ton.....	32.00	34.00	34.00
Wood pulp, sulph., No. 1, cwt..	2.50	3.17½	3.17½



PETROLEUM

Crude, Mid-Continent	1.02	1.02	1.02
Crude, Penna.	1.95	1.89	1.89
Gasoline, 65 oct.....	.06½	.05½	.05½
Bunker Oil C.....	1.50	1.25	1.25
Kerosene, 41-43 grav.....	.056	.053	.049 ↓
Penn. bright stock, light, 25 P.T.34	.21	.21
Penn. cylinder oil, 600 flash....	.25½	.18	.18



RUBBER

Smoked sheets	18½	.19½	.21 ↑
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TEXTILES

Cotton middlings, Galveston...	.1057	.098	.0994 ↑
Cotton yarns, 22s.....	.25½	.28	.26½ ↓
Print cloths, 38½", 64 x 60....	.05	.05¾	.05¾ ↑
Sheetings, 37", 48x48.....	.05¾	.065½	.06¾ ↑
Wool, fine combing, ½-blood..	.93	1.02	1.02
Worsted yarns, French 2-40s...	1.85	1.80	1.80
Worsted yarns, English 2-40s..	1.65	1.82½	1.77½ ↓
Silk, Japan, double extra cracks	3.01	2.53	2.64 ↑
Rayon, viscose, 150, 40s.....	.53	.53	.53
Burlap, 10½-oz., 40".....	.0765	.0835	.094 ↑
Hemp, Manila .....	.055½	.06¾	.07 ↑

Let this new "Brief-case Lab" show you how to build Employee Good Will, Cut Costs



SEE, in your own office, why the new "Soft-Tuff" ScotTissue Towel is the choice of hundreds of industrial leaders. Check the photo with these tests:

1. STRETCH TEST. The famous Scott "Soft-Weve" process makes these towels not only pleasantly soft, but pliant and stretchy to resist tearing.

2. RUB TEST. The new "Soft-Tuff" ScotTissue Towels now have 10 times more rub strength under drying conditions. They go farther, cut costs.

3. ABSORBENCY TEST. New "Soft-Tuff" ScotTissue Towels have double the

absorbent capacity needed for thorough hand drying!

4. LINT TEST. "Soft-Tuff" ScotTissue Towels help avoid lint being left on the face or clothing.

A trained staff member of the Scott Washroom Advisory Service will be glad to make these tests in your office. He will suggest ways to improve washroom comfort and hygiene . . . how to increase good will, reduce congestion and waste, save money. Scott Paper Co., Chester, Pa.

Copr., 1941, Scott Paper Co. Trade Marks "ScotTissue," "Soft-Weve" Reg. U.S. Pat. Off. Trade Marks "Soft-Tuff," "Washroom Advisory Service" Reg. App. For.

NEW Soft-Tuff ScotTissue TOWELS

When writing Scott Paper Co. please mention Purchasing





Completely Cold Forged FIBRO FORGED Socket Screws

Holo-Krome Guarantees it!

Holo-Krome realizes the responsibility of their Guarantee that *all* Holo-Krome FIBRO FORGED Socket Screws (Completely Cold Forged) *do* give UNFAILING PERFORMANCE. The superior method of manufacturing, patented and exclusively used by Holo-Krome plus constant, rigid inspection during each and every operation make "Guaranteed UNFAILING PERFORMANCE" by Holo-Krome a proven fact, attested to by thousands of users in all classes of industries.

Sold thru Authorized Stock Carrying
H-K DISTRIBUTORS



When writing The Holo-Krome Screw Corp. please mention Purchasing

DIRECTS WAR PURCHASES FOR BRITAIN



Sir Clive Baillieu

Sir Clive Latham Baillieu, who was appointed Director General of the British Purchasing Commission in New York in January, succeeding Arthur B. Purvis, took over the duties of that office on February 18th. The new Director General is a native of Melbourne, Australia, and a graduate of Trinity College at Melbourne University and Magdalen College at Oxford. He became a barrister at the Inner Temple following his graduation from Oxford. Only a few months later he went into active service in the World War, serving with distinction from 1915 to 1918 with the Australian Imperial Forces and the R. A. F. He was mentioned in despatches and decorated in 1918 as an Officer of the Order of the British Empire. He retired with the rank of Major in the Australian forces.

Since the World War he has been active in industrial circles and in public works. He is a Director of The Zinc Corporation, Ltd., and other companies, served as representative of H. M. Government in the Commonwealth of Australia on the Imperial Communications Advisory Committee, and since 1930 has been one of the Australian representatives on the Imperial Economic Committee. In 1929 he was made a Companion of St. Michael and St. George, and in 1938 was created Knight Commander, Order of the British Empire.

1 1 1

FUTURE SALES OF ZINC MAY BE CURTAILED

The Price Stabilization Division of the National Defense Advisory Commission has requested zinc smelters to refrain from making further sales on the Commodity Exchange, except to liquidate current long positions. The action is interpreted as another step in the effort to funnel all available supplies of the metal directly into defense production activities. The zinc futures market has been very quiet since the beginning of the year, price fluctuations on some occasions having affected less than half a dozen trades. Practically all of the leading zinc smelters are reported as agreeing to the Commission's request.

IN making pipe, as in making any quality product, nothing takes the place of human skill.

That's why we're so proud of our Youngstown steel makers, many of whom have had long years of experience in our mills. These men might surprise you with their knowledge of what you want in pipe. If you could watch them work, see how they use this knowledge to make a better product, it would give you even more confidence in the dependable quality of Youngstown Pipe.

Ask your distributor for Youngstown Pipe and Tubular Products - Sheets - Plates - Conduit - Tin Plate - Bars - Rods - Wire - Nails - Tie Plates and Spikes



19-13D

THE YOUNGSTOWN SHEET AND TUBE COMPANY

Manufacturers of Carbon, Alloy and Yeloy Steels
General Offices - YOUNGSTOWN, OHIO

When writing The Youngstown Sheet and Tube Company please mention Purchasing

**WE'LL BE GLAD TO
DO THE SAME FOR**

You!

AP GRIEF BUSTER No. 229

THE GRIEF

Men doing hand-finishing on metal in one of country's largest aircraft engine plants were having trouble with paper breaking and tearing. Production was slowed.

GRIEF BUSTER

AP Engineer found that paper in use was not flexed properly for purpose. Recommended specially flexed paper. Supplied paper so flexed. Production resumed.

MACHINE TOOLS

AP GRIEF BUSTER No. 1133

THE GRIEF

Large manufacturer of plastics was using expensive paper for grinding flash from moldings.

GRIEF BUSTER

AP Engineer suggested use of cheap, soft grain on strong backing. Finish was improved, and sandpaper costs were cut 84%. AP Paper now standard on this operation.

PLASTICS

AP GRIEF BUSTER No. 298

THE GRIEF

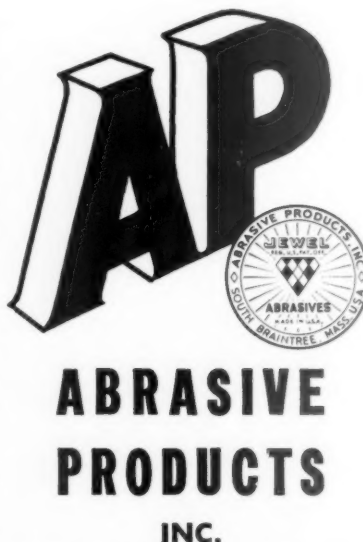
8 drum double-deck sander in sash and door plant was wearing out covers in 6 hours.

GRIEF BUSTER

AP Engineer found wrong type of sandpaper in use; recommended AP cover that cost no more. Top cover did 100 hours, bottom cover 125 hours with AP material. AP Sandpaper used ever since.

WOOD-WORKING

Your "Grief Buster" may be only a minor suggestion—or it may be a major change in your finishing operation. Either way, it will mean a bottleneck broken or some money saved. Your distributor will be glad to introduce you to the AP line of coated abrasives, packed in the exclusive "Masterpak" container that prevents moisture and handling damage. And he'll be glad to arrange for the AP Engineer to call at your finishing department. If you want a good source of supply on sandpaper, write Abrasive Products, Inc., 523 Pearl St., South Braintree, Massachusetts.



JWELOX • JEWEL EMERY • JEWEL GARNET • JEWELITE • JEWEL FLINT • NEW PROCESS

COOPERATE ON PURCHASING

Priority ratings are designed to differentiate between essential and non-essential demand. By and large, there is little tendency on the part of purchasing executives to abuse the system by applying for ratings in excess of their actual requirement. An outstanding example of voluntary cooperation to relieve the situation by stepping aside in favor of those having a more urgent need is the following letter, sent by E. Van Vechten, Purchasing Agent of the United Air Lines Transport Corp., Chicago, to machine tool builders with whom he has placed orders for lathes, milling machines, and similar equipment. Incidentally, as indicated in the concluding paragraph, it is good purchasing in that it serves to build good will against the day when pressure for defense production will be less severe and other purchasers can again ask for service and deliveries without conflicting with the national interest. Purchasing executives have found that one of the best techniques is to "sell" the vendor on the fact that their company is a desirable customer. The letter follows:

"Gentlemen:

"We are fully aware of the new ruling issued by the Office of Production Management, Washington, D. C., concerning machine tools.

"Inasmuch as United Air Lines is very desirous of cooperating 100% with the Defense Program, we have decided not to ask for priorities on the machinery we now have on order.

"We feel that by making use of our present facilities 100%, even to the extent of operating 24 hours a day if necessary, that we will be able to eliminate the need for the present at least, of the machinery covered by the subject order.

"At such time as the 'pressure' diminishes on tools and machine tools, we will then expect to be given some consideration as to deliveries.

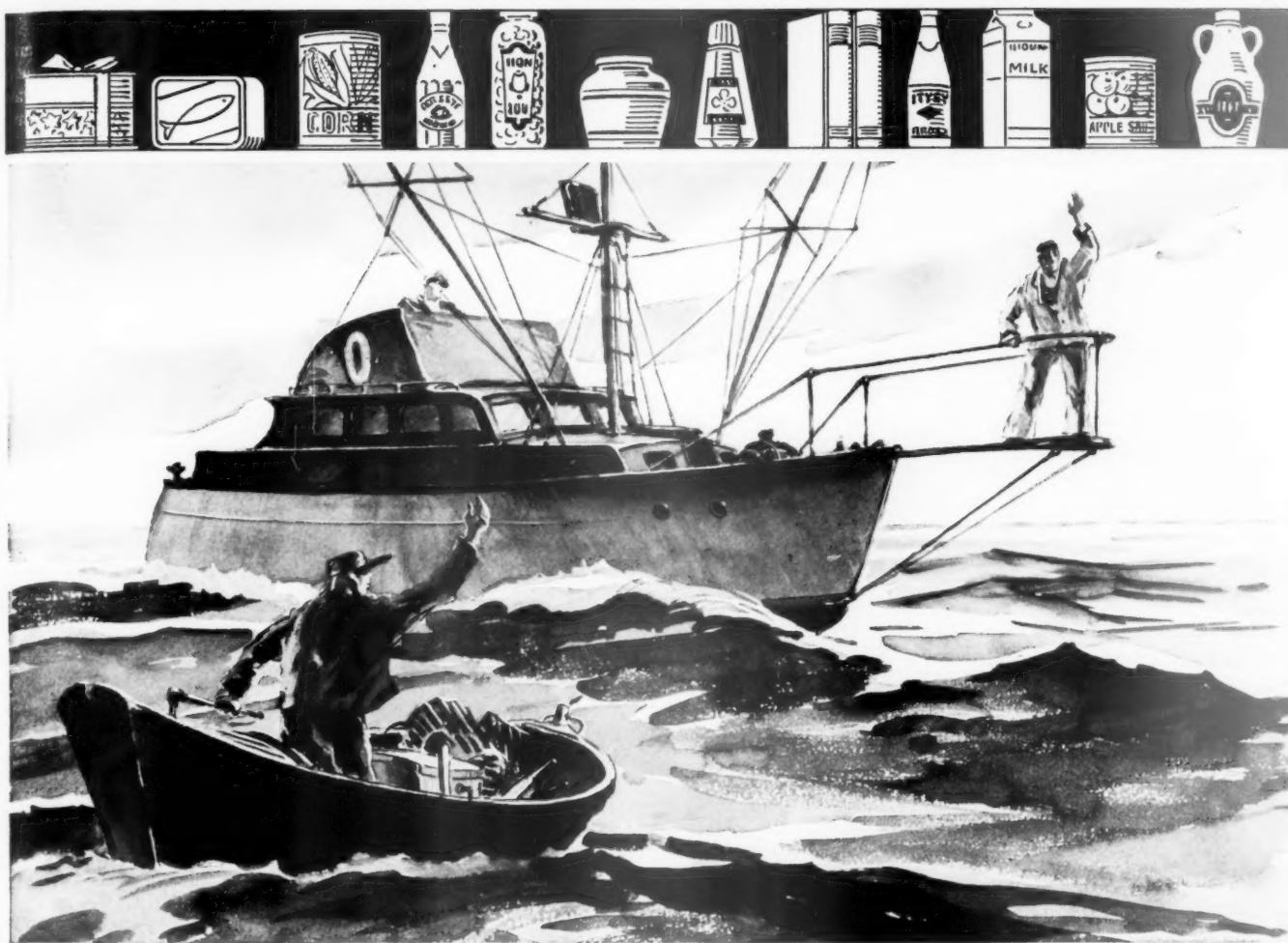
"Yours very truly,
E. Van Vechten
Purchasing Agent."

1940 OUTPUT AT RECORD HIGH

The U. S. Department of Commerce reported last month that industrial output in this country during 1940 was larger than in any previous year. Business indicators rose steadily after a first quarter which was none too promising, and at no time during the year did production fall particularly low, judged by the average of previous years. At the end of the year, operations in many fields were at a pace never before achieved.

The dominant influence on American industry was the European war, which supplied the impetus for the upswing, both by a heavy export demand for war materials and by prompting our own national defense program. The latter factor now overshadows everything else in the business and industrial situation. It was estimated in the President's budget of January, 1941, that defense ex-

When writing Abrasive Products Inc. please mention Purchasing



For each purpose - ONLY ONE SERVES BEST

When the job calls for a lobster dory, you do not need a yacht. And vice versa! Each is perfect for its own particular functions; they do not compete.

In the field of adhesives, the business of specialization goes even further. Arabol has 900 adhesives in active demand—8,500 adhesives formulae on file. Through 55 years of pioneering, Arabol has proved repeatedly that most of the time there is just one adhesive formula which will best meet each particular job.

The Arabol Representative who calls on you is technically trained—well qualified to help you find the one best answer to each of your adhesives requirements.

Many problems can be whipped right in your factory, in one day. At all times, he can call upon any of three laboratories for quick action on new or special needs. See the Arabol Representative when he calls.

WRITE us for Bulletin No. 26. Let us tell you of current developments in gums, glues and pastes for your particular line of business.

THE ARABOL MFG. CO.

PIONEERING SINCE 1885

Executive Offices: 110 East 42nd St., New York, N. Y.

Factories: . . . Brooklyn • Chicago • San Francisco

Branch Offices or Warehouses:
Boston • Philadelphia • Seattle • Toronto • Montreal



And—for Your Offices—



You'll find sound values in the pastes, glues and mucilages made by a firm with 55 years' experience in supplying the adhesives requirements of a hundred industries. Write us for the name of the nearest Arabol distributor.

Adhesives? . . . ARABOL!

When writing The Arabol Mfg. Co. please mention Purchasing



Why most plant owners choose Cyclone Fence



← CYCLONE'S sturdy spring coupling compensates for expansion and contraction of top rails due to extreme temperature changes. It prevents bending or breaking of rails—reduces upkeep costs.



→ BARBED WIRE is locked into notches in the Cyclone extension arm by a key inserted at the end. This allows adjustment of barbed wire to compensate for expansion and contraction. Only Cyclone offers this valuable feature.

It will pay you to know why Cyclone sells more property protection fence than any other manufacturer. For the important Cyclone features that make it the leader in sales also make it the best buy for you.

Right now, more plant owners than ever are concerned with adequately protecting their property—to guard valuable blueprints, expensive machinery, important dies and tools. We therefore offer the following information on important features of Cyclone Fence that give better protection at lower cost:

WIRE MESH—heavy copper steel. Galvanized by Cyclone's "12M" process that gives it extra years of life. Galvanizing is done *after* weaving so that cracks will not form and allow rust to start.

POSTS—H-column steel—strongest possible construction for its weight—set in concrete bases that frost can't weaken.

TOP RAILS—tubular steel. Spring couplings compensate for expansion and contraction—prevent broken and bent rails.

GATES—Strong and well-braced. Cyclone's exclusive ball and socket hinge permits free swinging, prevents dragging.

EXTENSION ARMS—Several types are available. All use the principle illustrated above to allow adjustment after expansion and contraction of wires.

ERECTION SERVICE—Cyclone factory-trained erection crews are on our own payroll and we are responsible for their work.

QUICK DELIVERY—Cyclone service is fast. We can meet almost any emergency delivery requirement. Write for recommendation and estimate.

CYCLONE FENCE COMPANY, Waukegan, Ill.
(DIVISION OF AMERICAN STEEL & WIRE COMPANY)
Branches in Principal Cities
United States Steel Export Company, New York

32-Page Book on Fence



Send for our free 32-page book that tells all about fence. Crammed full of facts, specifications and illustrations. Shows 14 types—for home, school, playground, and business. Whether you need a few feet of fence or 10 miles of it, you need this valuable book. Buy no fence until you see what Cyclone has to offer.

CYCLONE FENCE COMPANY
Waukegan, Ill. DEPT. B-31
Please mail me, without obligation, a copy of "Your Fence—How to Choose It—How to Use It."

Name

Address

City State

I am interested in fencing: ☐ Industrial; ☐ Estate; ☐ Playground; ☐ Residence; ☐ School.

Approximately feet



CYCLONE FENCE

UNITED STATES STEEL

When writing Cyclone Fence Company please mention Purchasing

penditures for the fiscal years 1940 and 1941 would total more than seventeen billion dollars, representing more than 10% of our expanded national income for this period.

The special problems imposed by the enormous scope of this program—problems of creating sufficient armament producing facilities, enlarging capacity to avoid bottlenecks, providing additional labor, and assuring adequate supplies of raw materials—are not regarded, in this report, as having reached an acute stage by the close of 1940.

For the year as a whole, the Federal Reserve Board index of industrial production averaged 122, on the basis of the 1935-1939 average equaling 100. This was 8% higher than the 1937 average, and 11% higher than the average for 1929, which has been accepted for the past decade as the high water mark of business activity in the United States.

Manufacturers' inventories reached their low point for 1940 at the middle of the year. According to the Department of Commerce data, approximately 150 million dollars of such inventories were liquidated between the end of February and the end of June. However, even in the brief period of generally receding industrial activity, some important lines showed a continued increase in output.

Lines in which further significant net increases occurred prior to April were aircraft, shipbuilding, newsprint, fuel oil, and cigarettes. Smaller increases were recorded in beet, ground wood pulp, and glass container production. The defense program and extensive purchases by the British Empire provided a direct demand for durable goods and induced a large increase in about all types of capital formation. Industries in which production for the year established new high records include aircraft, tin, zinc, steel, pulp and paper.

PURCHASING COURSE AT WASHINGTON UNIVERSITY

The School of Business Administration, University of Washington, Seattle, is inaugurating a course in industrial purchasing during the spring quarter, starting this month, according to an announcement by Dean H. H. Preston. The course has been added because of an increased demand for men trained in purchasing, and upon the direct recommendation of the Purchasing Agents Association of Washington. The instructor will be Prof. Don H. Mackenzie, who studied with Prof. Howard T. Lewis at the Harvard Graduate School and conducted a course of ten sessions on purchasing under the sponsorship of the Washington Association last year.

Fulton L. Dobson has been appointed Fuel Purchasing Agent for the Pennsylvania Railroad, with headquarters at Philadelphia. He succeeds Philip A. Hollar, who has been named assistant stores manager at Philadelphia.



Is that YOU he's cursing?

Why take chances on losing dealer good will with damaged shipments?

And why overlook a chance to build more sales?

Gaylord's famous *extra margin of safety* is built into every Gaylord shipping container...just to make *extra* sure your merchandise will arrive fresh, attractive, and undamaged...no matter how far it travels...or how rough the journey!

And to help your shipping containers win *extra sales* as well as provide extra safety for your merchandise...Gaylord's precision presses turn out sharper, clearer color printing, and Gaylord's designers, experts at adding extra sales punch to shipping containers, are at your service.

Phone or write today. See for yourself how Gaylord's extra margin of safety can mean safer shipping and extra sales for *your* merchandise. No obligation, of course.



GAYLORD CONTAINER CORPORATION

General Offices: SAINT LOUIS

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle • Indianapolis
Houston • Los Angeles • Minneapolis • Dallas • Jacksonville • Columbus • Fort Worth • Detroit
Tampa • Cincinnati • Des Moines • Oklahoma City • Portland • Greenville • San Antonio
Memphis • Kansas City • Milwaukee • Bogalusa • Weslaco • Greensboro

When writing Gaylord Container Corporation please mention Purchasing



CORRUGATED AND SOLID FIBRE

Also Gaylord Folding Cartons...Grocery
Bags and Sacks...Kraft and Specialties

Among the ASSOCIATIONS

NORTHWEST BUYERS CONFERENCE AT PORTLAND

The sixth annual Pacific Northwest Purchasing Agents' Conference will be held at Portland, Oregon, April 26th and 27th, with headquarters at the Multnomah Hotel. Committees for the meeting have been announced by Harold H. Cake, President of the Oregon Association, as follows:

General Committee: Frank Fitzpatrick (chairman), Ross Cooper, Ken Van Scyoc, and Clifford Amos.

Publicity: Ed MacLean (Chairman), Bert Rue, and George Griffis.

Hotel Accommodations: Harold H. Cake.

Business Meeting: George Griffis (Chairman), Austin Angell, and Chester Bourne.

Evening Meeting: Clyde Ginn (Chairman), Clarence Slade, and Arthur Prier.

Evening Entertainment: Glenn Ede (Chairman), Orville Buckner, and Fred Lord.

Reception: Jack Meyer (Chairman), Clare Bay, Otto Hoak, Fred Nowotny, and Emil Swanson.

Transportation: Lee Baumhover (Chairman), Peck Woodbury, and Vic tor Marchi.

Golf: William Gorrell (Chairman), Joseph Duffy, and George Knepper.

Ladies' Entertainment: Gordon Lindsey (Chairman), George Williams, and Gene Schmitt.

Finance. Orville Buckner and Harold Cake.

The program is to be arranged in consultation with representatives of the Washington and British Columbia Associations.

1 1 1

FEBRUARY 3

HOUSTON—Annual meeting of the *Houston Association*, at the Rice Hotel. The following officers were elected for 1941:

President, Fred B. Lane of Reed Roller Bit Co.

Vice Presidents, W. W. Lawson of Wood Preserving Division, Koppers Co., and Ivan B. Nevill of Oil Center Tool Co.

Secretary, James Cox of *The Southwestern Purchaser*.

Treasurer, Arthur H. Krueger of Heights Lumber Yard.

National Director, W. R. Swartz of Texas Gulf Sulphur Co.

Alternate National Director, L. W. Crawford of Gulf Oil Corp.

Local Directors, Charles W. Dabney, Jr., of Champion Paper & Fibre Co.;

D. M. Layer of Dunlay-Armand Co.; and Frank A. Watts of Humble Oil & Refining Co.

FEBRUARY 4

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: Robert E. Reed of the Oakland Traffic Department, "Traffic Problems; the Motor Vehicle Act."

FEBRUARY 6

WARREN—Dinner meeting of the *Northwestern Pennsylvania Association*, at the Carver Hotel. L. H. Forker of the Quaker State Oil Refining Corp. presided, and the program was in charge of W. H. Schellhammer of the Hammond Iron Works. Speakers included Ralph Kress of the Fleet Sales Division, General Motors, "Operating Costs of Motor Fleets"; C. E. Chambliss, Jr., of General Motors Sales Corp., "Fleet Records and Accounting"; and N. I. Stoltz, chief metallurgical engineer of the Universal Cyclops Steel Corp., "Development of Stainless Steel."

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel. Speaker former Chief William J. Quinn, "Crime Detection."

FEBRUARY 8

HOUSTON—Annual inaugural ball of the *Houston Association*, at the Houston Country Club. Installation of new officers. Nearly five hundred members and guests attended. Frank A. Watts was in charge of arrangements.

FEBRUARY 10

BOSTON—"National Association Night" dinner meeting of the *New England Association*, at Schrafft's. The program included addresses by three officers of the N.A.P.A., President George E. Price, Jr., of Akron; District Vice President F. Albert Hayes of Boston; and Executive Secretary George A. Renard of New York.

PORTLAND—Dinner meeting of the *Oregon Association*, at the Mallory Hotel. Speakers: T. W. Fitch, Illumination Engineer of the Portland General Electric Co., "Fluorescent Lighting"; Burton M. Smith, C. P. A., "New Taxes as They Affect Purchasing"; and J. Donald Kroeker, Air Conditioning Engineer, "Air Conditioning in Industrial Plants."

FEBRUARY 11

MILWAUKEE—Dinner meeting of the *Milwaukee Association*, at the Elks Club. Graduates of the course in purchasing at Marquette University were present and were presented with certificates. Speaker: C. E. Stender, Comptroller of the Pressed Steel Tank Co., "Material Control as Exercised by the Comptroller's Department." Prof. Lee E. Lawrence of the University of Wisconsin commented on recent economic developments and legislation affecting purchasing. The meeting was preceded by a community forum.

TULSA—"Army Night" dinner meeting of the *Tulsa Association*. Sound motion picture, "Army on Wheels", the first official picture of the U. S. Army mechanized forces in defense maneuvers, produced by the truck division of Dodge Bros., Inc. Major H. A. Montgomery, District Engineer, U. S. Army, spoke on construction work in the Tulsa district. Preceding the meeting there was a round table discussion on the purchase of electrical equipment, led by R. V. Stephens of the Public Service Co. of Oklahoma.

NEW YORK—Dinner meeting of the *Metropolitan Purchasers' Assistants Club*, at Midston House. Speaker: Stuart F. Heinritz, Editor of *PURCHASING*, "National Defense—Our No. 1 Purchasing Job."

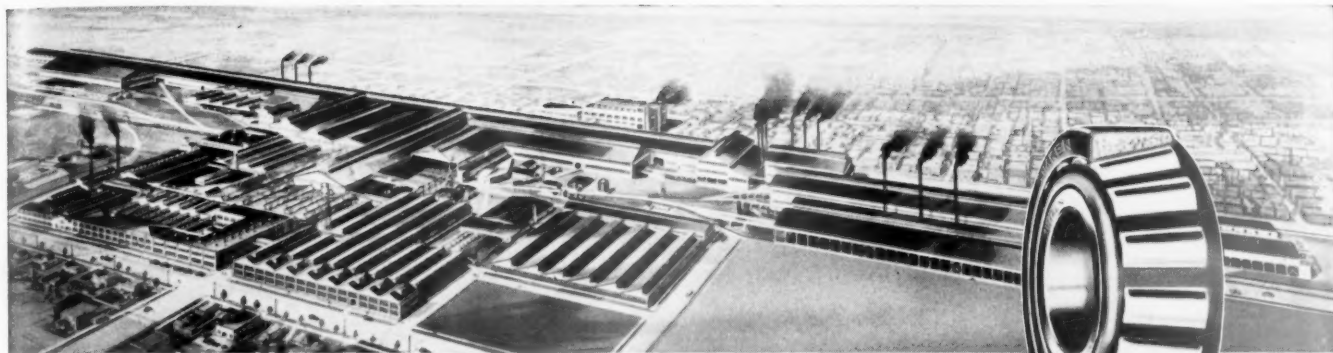
OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Sound motion picture, "Sierra Playgrounds," presented by courtesy of the Pacific Gas & Electric Co.

FORT WORTH—Plant visit of the *Fort Worth Association*, at the Trinity Valley Iron & Steel Co., viewing operations in the pattern shop, the manufacture of soil pipe, and the special castings department.

FEBRUARY 12

CINCINNATI—Executives' Night dinner meeting of the *Cincinnati Association*, at the Hotel Gibson. Speakers: George E. Price, Jr., of Akron, President of the N.A.P.A., "National Affairs"; and George A. Renard, Executive Secretary of the N.A.P.A., "From One P. A. to Another."

MINNEAPOLIS—Dinner meeting of the *Twin City Association*, at the Hotel Radisson. The newly elected officers



TIMKEN ROLLER BEARING CO.
CANTON, OHIO

"IT PAYS TO 'KEEP THINGS ROLLING'"

Says Colonel Clipper



The Timken Roller Bearing Co. of Canton, Ohio
has effected a saving of about 30%
in consumption of belt hooks by using
Clipper Speed Lacers, Clipper Belt Hooks
and Clipper Lubrihide Pins.

The makers of these well-known Roller Bearings have made important savings each year through decreased costs of production due to increased running time of Clipper-laced belt joints.

You, too, can "Keep Things Rolling" by using Clipper Products. There is a Clipper belt hook size and a Clipper belt lacer model for all belts and tapes from $\frac{1}{16}$ " to $\frac{3}{8}$ " thick inclusive.

CLIPPER BELT LACER COMPANY, Grand Rapids, Michigan, U.S.A.

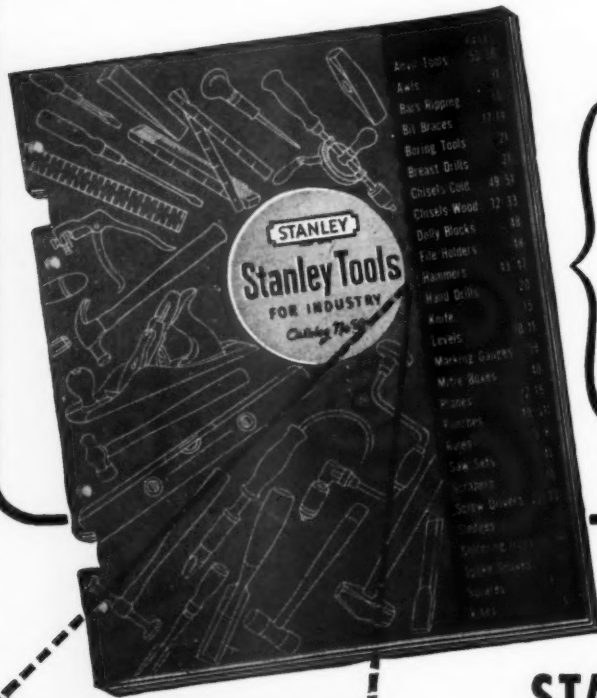
SPEED
DEFENSE BY
NOT
INTERRUPTING
PRODUCTION



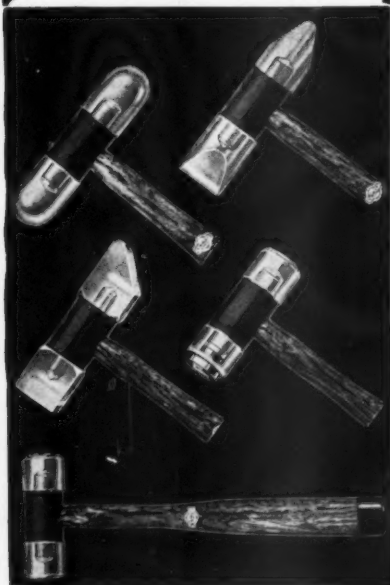
When writing Clipper Belt Lacer Company please mention Purchasing

"SEND ME YOUR NEW CATALOG OF STANLEY INDUSTRIAL TOOLS"

Requests are coming in fast for this new Stanley Catalog No. 50, describing basic and special-purpose Stanley Hand Tools for industry's use. Write for yours! It's ready-referenced, easy to use — a complete guide to the kind of tools you need in your shop.



Every
Index
Listing
Marks A
Complete
Line



STANLEY Soft Face HAMMERS Typical Of Stanley Industrial Tools!

For all kinds of assembly work — light sheet metal forming — aircraft manufacture — these Stanley Soft Face Hammers are ideal. Tips of tough but gentle "Stanloid" composition are easily replaceable. "Evertite" processed hickory handles, with comfortable grips, are securely wedged into steel center body. Your distributor will be glad to supply these tools.

STANLEY TOOLS

DIVISION OF THE STANLEY WORKS
New Britain, Conn.

THE TOOL BOX OF THE WORLD

took over their duties at this meeting. Three films of war movies were shown: "The Invasion of Poland," "Finland Fights Back," and "Bombs Over Paris."

SPRINGFIELD, OHIO—Dinner meeting of the *Springfield Association*, at the Heaume Hotel. Round table discussion on priorities.

FEBRUARY 13

CHICAGO—Dinner meeting of the *Chicago Association*, at the Hotel Sherman. Speaker: Dr. Heinz Luedicke, Editor of the *New York Journal of Commerce*, "Commodity Prices and Purchasing Policies under an 'All-Out' Defense." Market charts presented by Chairman Thomas Anderson and his colleagues on the commodity committee, provided a pertinent parallel commentary on the subject of the evening.

LOS ANGELES—Dinner meeting of the *Los Angeles Association*, at the Elks Club. The program featured a "Purchasing Agents' Quiz," with cash awards, under the direction of Dr. Thurston H. Ross, Director of the Bureau of Business Research, University of Southern California, and Educational Director of the Association. Larry T. Bleasdale of the Zellerbach Paper Co., Chairman of the Educational Committee, was master of ceremonies.

SAN FRANCISCO — Annual joint luncheon meeting of the *Northern California Association* and the Golden Gate Paint, Varnish & Lacquer Association, at the Palace Hotel.

LOUISVILLE — Annual Executives Night dinner meeting of the *Louisville Association*, at the Kentucky Hotel, with 700 in attendance. Speaker: George A. Renard, Executive Secretary of the N.A.P.A., "From One P. A. to Another."

SEATTLE—Dinner meeting of the *Washington Association*, at the New Washington Hotel. Guest Speakers: Lieutenant M. W. Clark, Chief of Procurement Division, U. S. Navy, Puget Sound Navy Yard, "National Defense Buying Problems in the Northwest"; and Clarence R. Innis, National Defense Committee, Seattle Chamber of Commerce, "Fact Blindness." Several brief talks by association members were also presented: Howard Flanders, "How Priorities Work"; Frank Smith and Roy Hull, "Buying Problems Under National Defense Pressure"; Harry Miller, "General Business and Commodity Conditions"; and Jack Lamb, "Transportation Problems."

FEBRUARY 14

CAMAS, WASHINGTON — Luncheon meeting of the *Oregon Association*, at the Crown-Willamette Inn, as guests of the Crown-Zellerbach Corp. The meeting was followed by an inspection visit to the company's plant.

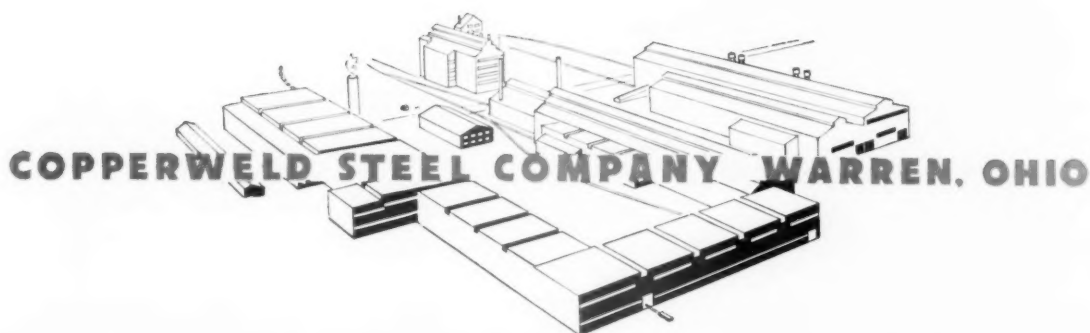
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FEBRUARY 17

HOUSTON—Luncheon meeting of the *Houston Association*, at the Rice Hotel, in charge of the newly elected officers. General business meeting and announcement of committees for the year.

FEBRUARY 18

PITTSBURGH—Dinner meeting of the *Pittsburgh Association*, at the William Penn Hotel. Motion picture of the San Francisco-Oakland Bay Bridge, presented through courtesy of the American Bridge Co., with explanatory comments by Dr. Charles Francis Goodrich, who was in charge of design and engineering for that company in the construction of the bridge.

ST. LOUIS—Dinner meeting of the *St. Louis Association*, at the Hotel York. Speaker: Howard V. Clark of Pittsburgh, Sales Manager of the Sheet Division, Carnegie-Illinois Steel Corp., "The Marketing of Sheet Steel Products."

NEW YORK—The annual Sales-Purchasing conference and dinner meeting of the *New York Association* attracted another capacity audience of sales and purchasing executives at the Hotel Pennsylvania. Harold K. LaRowe, General Chairman, presided at the afternoon forum, introducing a panel discussion on the "Information Please" pattern, devoted to questions on the relationship between these two business functions. Prof. Alvin C. Busse of New York University, member of the sales-training team of Borden & Busse, acted as Master of Ceremonies. A humorous prologue dramatically contrasted professional and non-professional attitudes; the actors were A. C. Busse and Ralph Zink. Participating in the discussion were five representatives of purchasing: A. Clohosey, Purchasing Agent of the Westinghouse Lamp Division; Dr. Russell Forbes, Commissioner of Purchase for the City of New York; H. A. Manderson, Supervisor of Purchases for Continental Can Co.; S. W. Mays, Purchasing Agent of the American Cyanamid Corp. & Subsidiaries; and T. I. Savage, Purchasing Agent of the Murphy Varnish Co.; and five representatives of sales: Dr. Paul Nystrom, Professor of Marketing at Columbia University and President of the Sales Executives Club; Daniel J. Healy, Eastern Division Sales Manager of Spencer Kellogg & Sons Sales Corp.; Frank W. Lovejoy, Sales Executive of the Socony-Vacuum Oil Co.; William H. Oliver, New York District Manager of the Republic Steel Corp.; and G. H. Reid, Manager of the Industrial Department, New York District, General Electric Co. Following a reception and cocktail hour in the foyer of the Grand Ball Room, came the regular dinner meeting, with President John D. Leeson presiding. George A. Renard briefly summarized the purchasing-sales relationship under present conditions. Dr.

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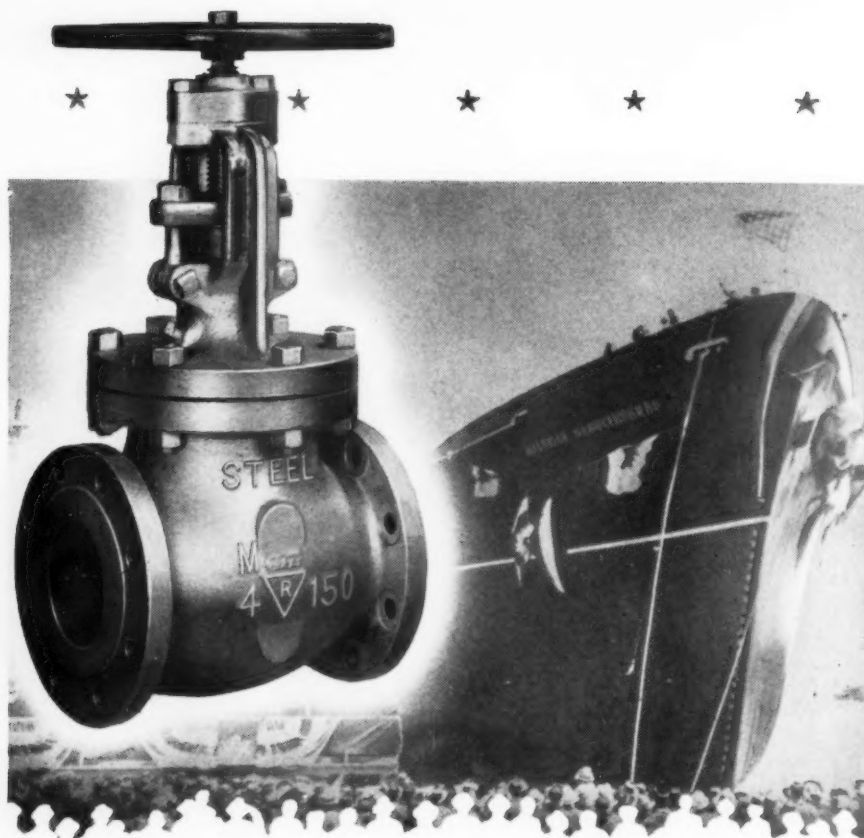
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J. Anton de Haas, William Zeigler Professor of International Relationships at the Harvard Graduate School of Business Administration, delivered the address of the evening, "What Lies Ahead?"—an eloquent appeal for recognition of the national emergency and for united "all out" effort for defense. Guests at the meeting included Glenn C. Parsons of Buffalo, District Vice President; G. C. Eichhorn of Greensboro, President of the Carolinas-Virginia Association; H. L. Brueggeman, President of the Chicago Association; William B. Cummings and Charles L. Sheldon of the New England Association.

AKRON—Dinner meeting of the *Akron Association*, at the University Club. Speaker: Mr. Taylor of Taylorcraft Aviation Corp., Alliance, Ohio, "Development of Light Airplane Industries."

FEBRUARY 19-21

STOCKTON—Twenty-fourth annual convention of the *California State, County & Municipal Purchasing Agents' Association*. Claude T. Faw was chairman of the General Convention Committee, and Walter Y. Treathaway of San Joaquin County was in charge of the program.

WEDNESDAY, FEBRUARY 19

Morning Business Session

Presiding Officer, J. H. Morrow, Purchasing Agent, County of Contra Costa, and President of the Association.
 Round Table discussion.

Luncheon Meeting

Presiding Officer, Van Shaljian, Purchasing Agent, City of Stockton, and Vice President of the Association.

Address of Welcome, by Hon. Lawrence L. Ventre, Mayor of Stockton.

Address by Dr. Tully C. Knoles, President, College of the Pacific, "Europe Today."

Report on N.A.P.A. convention proceedings, by Arthur Baker, Executive Secretary-Treasurer, Los Angeles Association.

Remarks by visiting delegates representing the Northern California and Los Angeles Associations.

Address by James Musatti, General Manager, California State Chamber of Commerce, "The Complex California Tax Picture and the Need for Intelligent Economy in Government."

Address by Dr. G. A. Werner, College of the Pacific, "America and the World War No. 2."

Evening

Stag dinner and entertainment at Matteoni's Celebrated Club.

THURSDAY, FEBRUARY 20

Morning Business Session

Address by George W. Aljian, Purchasing Agent, California & Hawaiian Sugar Refining Corp., and President of

33 REASONS WHY You're Assured BEST POSSIBLE RESULTS when you specify **BENJAMIN FLUORESCENT LIGHTING UNITS**



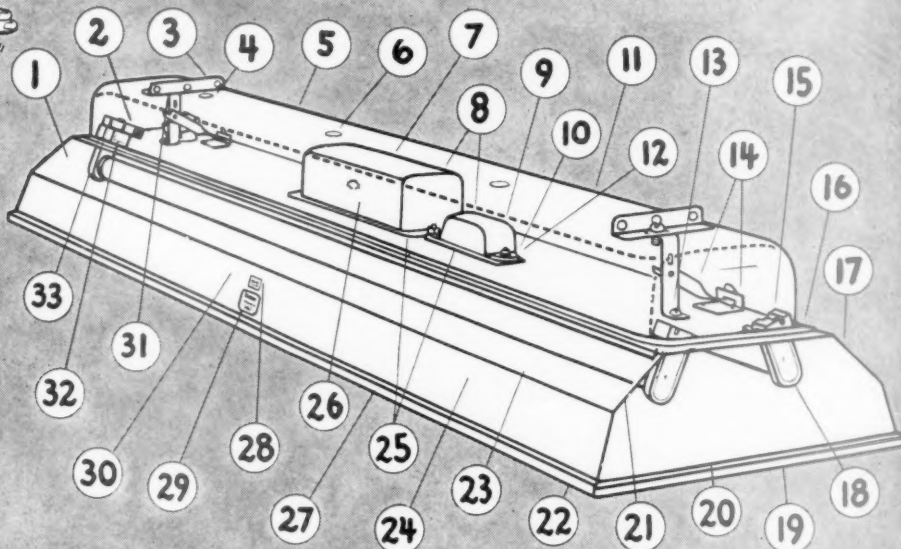
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that meets the high standards established by Benjamin, the RLM Standards Institute and the requirements of the Science of Seeing.

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BENJAMIN IS READY TO MEET YOUR EMERGENCY REQUIREMENTS... ready to give you the lighting recommendations and the delivery service you require. Call on Benjamin.



These 33 Features of Benjamin RLM "Stream-Flo" Units enable you economically to increase Seeing Efficiency and Production

NEVER in our history has it been so important that immediate steps be taken to increase the *Speed and Ease of Seeing* so as to improve production, increase accuracy of workmanship, safety and all-round employee efficiency. Never before has there been available, in such a period as this, a tool so admirably adapted to this purpose as the cool, economical, Daylight lighting provided by Benjamin Fluorescent Lighting Equipment.

These 33 features built into Benjamin RLM "Stream-Flo" Units indicate the thoroughness with which all Benjamin Fluorescent Lighting Units are engineered and constructed. In these 33 features

you will find the evidence of engineering leadership which has made Benjamin the leading maker of lighting equipment for industrial and commercial use.

It will be to your interest to write now for a copy of the new Benjamin Manual on Fluorescent Lighting containing the data sheet detailing each of the 33 "Stream-Flo" features and complete information about all other Benjamin Fluorescent Units. This Manual will give you the facts which are leading more industrial concerns, consulting engineers and others to specify Benjamin equipment than any other. Address the Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Illinois.



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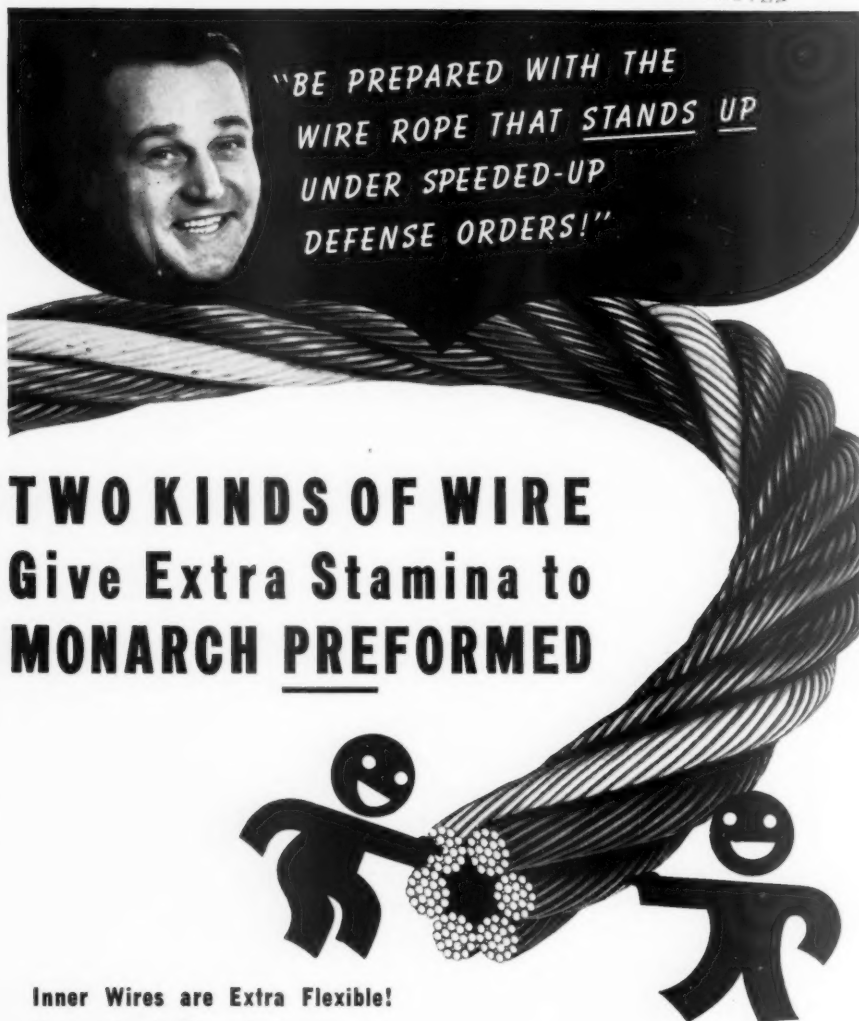
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Give Extra Stamina to
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Inner Wires are Extra Flexible!

Every wire inside each strand is improved plow steel. Unusually pliable—designed to fight internal fatigue caused by continuous bending. These flexible, tough wires provide the reserve strength of the rope.



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Monarch PREformed is laboratory tested. It's field-proved on equipment like that for which you buy rope. And around every wire is a specially formulated lubricant to guard unseen, inside wires against damaging and costly rust and internal friction.

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the Northern California Association, "National Defense—a Major Purchasing Job."

Report of Legislative Committee, by J. Fred Misphey, Purchasing Agent, State of California, Chairman.

Address by Wayne R. Allen, Chief Administrative Officer, Los Angeles County, "New Laws Affecting County Purchasing Agents, Including Authority for Purchasing Agents to Sell All County Property."

Plant Inspection

Bus trip, by courtesy of Stockton Electric Railroad Co., to the Stockton Deep Water Harbor and to the plant of Fibreboard Products, Inc.

Luncheon Meeting

Luncheon at the Fibreboard plant, as guests of the company.

Presiding Officer, J. H. Morrow.

Address of Welcome, by N. M. Brisbois, Vice President and Manager of the Stockton plant of Fibreboard Products, Inc.

Address by W. B. Hogan, City Manager of Stockton, "The Port of Stockton." Mr. Hogan also spoke on the personnel system of the city.

Plant inspection tour.

Evening

President's Dinner and entertainment, at the Hotel Stockton.

FRIDAY, FEBRUARY 21

Morning Business Session

Address by Roger W. Jessup, Chairman of the Board of Supervisors, Los Angeles County, "The Necessity of Centralized Purchasing in Government."

FEBRUARY 20

OAKLAND—Dinner meeting of the Northern California Association, at the Hotel Leamington. Lyn L. Shafer presided. The topic of the meeting was "Synthetic Rubber." The meeting was preceded by an afternoon forum on "Packaging," led by George W. Aljian of the California & Hawaiian Sugar Refining Corp.

CLEVELAND—Annual Executives Night banquet meeting of the Cleveland Association, at the Hotel Cleveland. Speaker: George A. Renard, Executive Secretary-Treasurer, N.A.P.A., "Commodity Price Control in National Defense."

ALBANY—Dinner meeting of the Eastern New York Association, at the Hotel Ten Eyck. Round table discussion of market conditions, price trends, and deliveries. Harold Ellwood showed motion pictures of Association outings.

SPRINGFIELD—Dinner meeting of the Western Massachusetts Association, at the Sheraton Hotel. Speaker: P. L. Grammer, Assistant Purchasing Agent of the Pennsylvania Railroad and a past president of the Philadelphia Association, "Transportation in Connection with

Purchasing." F. A. Hayes of Boston, N.A.P.A. Vice President for District No. 9, was a guest at this meeting.

FEBRUARY 21

BALTIMORE—Twenty-first Annual Ladies' Night dinner dance of the *Baltimore Association*, at the Lord Baltimore Hotel. The committee in charge included A. H. Schultz (Chairman), F. H. Carter, J. H. Gaston, L. I. Whiteford, G. Neukam, C. C. Seidenstricker, and K. E. Yount.

CLEVELAND—Annual dance of the *East End Purchasing Agents Club*, at the Cleveland Club. The committee in charge included Fred Stroupe (Chairman), Ray Frey, Joe Kustin, George Long, and Joy Seaman.

PORTLAND—Luncheon meeting of the *Oregon Association*, at the Mallory Hotel. Discussion of purchasing problems, based on releases from the N.A.P.A. office. Preliminary plans were made for the Pacific Northwest Conference of Purchasing Agents, which will be held in Portland April 26th and 27th by the Oregon, Washington and British Columbia Associations.

FEBRUARY 22

WILLIAMSVILLE, N. Y.—Annual informal dinner dance of the *Buffalo Association*, at the Park Country Club. The committee in charge included John C. Newton (Chairman), Frank G. Kager, Thomas R. Beecher, Stanley Ferguson, Frank J. McMahon, F. Corson Castle, Sheldon D. Klein, Richard Johnson, and A. E. Chipman.

FEBRUARY 24

PROVIDENCE—Dinner meeting of the *Rhode Island Association*, at the Narragansett Hotel. Forum discussion on "Priorities," led by Carl P. Riegger of the Grinnell Co. Speaker: Prof. Philip W. Thayer of Harvard University Law School, "The Legal Aspects of Buying."

HOUSTON—Luncheon meeting of the *Houston Association*, at the Rice Hotel. Speaker: George E. Price, Jr., of Akron, President of the N.A.P.A., "National Affairs."

FEBRUARY 25

NEW HAVEN—Dinner meeting of the *Connecticut Association*, at the Union League Club. Commodity discussion, led by J. C. Andrews of American Hardware Corp. Speaker: Hudson B. Hastings, Professor of Economics, Yale University, "What's Ahead in Prices and Deliveries?"

OAKLAND—Luncheon meeting of the *East Bay Group, Northern California Association*, at the Lake Merritt Hotel. Speaker: H. C. Heald of United Air Lines, "Radio Highways of the Air."

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Here's the blade that can take the toughest twist . . . and come out straight and unbroken, good as ever . . . good for many more hours of smooth, fast cutting. *For the tooth-edge alone is hardened*, leaving the body of the blade tough and flexible, fit to stand the severest strain. So next time you need hack saws, order this abuse-proof RED END BLADE.

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Length of Blade	Teeth per Inch	Price per Gross
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LINDEN, N. J.—Plant inspection trip of the *Metropolitan Purchasers' Assistants Club*, at the General Motors Assembly Plant.

SYRACUSE—Dinner meeting of the *Syracuse & Central New York Association*, at the Hotel Syracuse. Prof. Loberg of Cornell University spoke on the Haney charts for interpreting current business trends. Round table discussion of purchasing problems, including priorities, futures markets, price control, forward buying, and deliveries.

FORT WORTH—Luncheon meeting of the *Fort Worth Association*, with N.A.P.A. President George E. Price, Jr., as guest of honor.

DALLAS—Dinner meeting of the *Dallas Association*. George E. Price, Jr., National President, discussed purchasing in the light of present economic conditions.

FEBRUARY 26

ROCHESTER—Dinner meeting of the *Rochester Association*, at the Rochester Club. Forum discussion of current purchasing problems, led by S. R. Curtis of the Stromberg Carlson Co.

OKLAHOMA CITY—Meeting of the *Oklahoma City Association*. George E. Price, Jr., N.A.P.A. President, was guest of honor and principal speaker.

FEBRUARY 27

SAN FRANCISCO—Luncheon meeting of the *Northern California Association*, at the Palace Hotel, in honor of Fred Feagans, charter member and past president of the Association, recently elected to honorary membership.

TULSA—Dinner meeting of the *Tulsa Association*, open to executives of member companies and guests. Speaker: George E. Price, Jr., of the Goodyear Tire & Rubber Co., Akron, President of the N.A.P.A., "National Affairs."

SEATTLE—Plant visit of the *Washington Association*, at the Western Gear Works.

LOS ANGELES—Luncheon meeting of the *Los Angeles Association*, at the Chamber of Commerce. "Information Please" discussion period on forward buying, priorities, and defense. E. H. Weaver was chairman.

BIRMINGHAM—Luncheon meeting of the *Birmingham Association*, at the Redmont Hotel. Discussion led by association members: Earl Evans, "Coal and Coke"; Joe Penick, "Finance"; and Barney Jones, "The N.A.P.A. Convention."

Government Stock Piles Insure Supply

(Continued from page 44)

In setting up the stockpile program, the Rubber Reserve Company agreed to purchase up to 430,000 tons of crude rubber at a cost of approximately \$190,000,000. The rubber is purchased at about 20 cents a pound, the current market price.

Of this total rubber tonnage, 110,000 tons have been contracted for, and more than half has been delivered. In addition, 90,000 tons of "barter" rubber have been acquired by the Commodity Credit Corporation, another subsidiary of the Reconstruction Finance Corporation, in exchange for cotton shipped to England.

This Government stockpile is in addition to stocks which industry is building up, and while the total reserve on hand is not sufficient for a year's rubber requirements in this country, the purchase program, when completed, will create a sufficient reserve for a year's operation.

Rubber, which is purchased at between 18 and 20 cents a pound by the Government, will be turned over to industry at a fair market price in the event of an emergency.

At the same time, surveys are being made in South America, looking toward rubber cultivation in this Hemisphere, and rubber manufacturers are being encouraged in the production of synthetic rubber, to supplement Far Eastern rubber if that source were cut off.

If a stockpile were accumulated sufficient for a year's requirements, it is believed that production of synthetic rubber might be geared up during that period to cover industrial needs.

Tin reserves covering more than a year's requirements have been contracted for by the Metals Reserve Company, the principal sources being British Malaya, Netherlands Indies, French Indo China, China and Bolivia. Again in the case of tin, industry itself has accumulated stocks.

Other Metals Procured

Manganese, another metal of prime importance to defense, has been contracted for, both from Far Eastern Countries and Latin American sources, as well as from domestic producers. While the United States has a large manganese ore production, most of domestic manganese is not of ferro grade, which is essential in metallurgical processes.

The domestic manganese is obtained from ores running mostly between 5 and 35 per cent manganese, and imports of 1,254,588 tons of high grade manganese ore were necessary in 1940 to meet industrial requirements. The Metals Reserve Company has contracted for 447,040 tons of Far Eastern manganese, 276,000 tons of Latin American manganese, and 1,335,000 tons of domestic manganese.

Other metals being purchased by the



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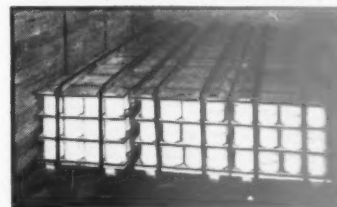
• Issuing complaints and obtaining adjustments on damaged and delayed shipments is a costly and often unnecessary tax on efficient purchasing.

You can virtually eliminate this time and cost consuming procedure by instructing your suppliers to use the Acme Steelstrap Process. You will find that it will speed delivery, prevent damage and *reduce receiving costs of the products you buy.*

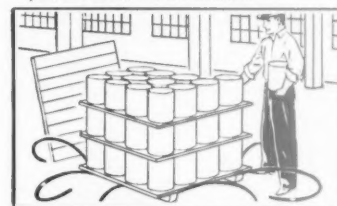
Your suppliers will benefit, too. They can give you better service at no additional expense to them, because their packing and shipping costs will actually be lowered. And your Steelstrap purchases can be made most economically on Acme's Strap-Buying Plan. Mail the coupon for complete details. No obligation.



Receiving costs are reduced when Acme Unit-Load is used for pool cars. Just snip the bands and unload. No complicated braces to remove or to replace.



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● Tools play an indispensable part in National Re-Armament—as vital as the ships and shells, the trucks and tanks, barracks and bridges, grenades and guns they make possible. And the basic tools are still those which cut—the knife, and that multiple knife, the saw. Most jobs begin with cutting off material to be used, and nearly all jobs at some stage employ cutting, shaving, grinding.

The part played in speeding the defense program by Atkins Saws, Files and Knives is all the more important because of unequalled performance in many plants and shops by recent exclusive Atkins developments—the Clearance Grind for Circular Saws—the Curled-Chip System of Metal Cutting by Circular Milling Saws, Segmental Cold Saws and Powersaw Blades. Write for latest data on lowest cost per cut by Atkins.

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ATKINS *Silver Steel* SAWS

When writing E. C. Atkins and Company please mention Purchasing

Metals Reserve Company are antimony and tungsten from China, chrome ore from South Africa, and the Philippines, and graphite from Madagascar. These metals do not represent as immediate a problem as the first four discussed, and although their importance to industry is considerable, the tonnage involved is not large and consequently the factor of transportation is not as immediate.

Prices Are Stabilized

One important factor in the stockpile program is the fact that large Government holdings could exert an effective curb on sharp price increases. While Secretary Jones expressly states that the purchase of materials has no bearing on price, it is nevertheless apparent that if a large supply is held by the Government, a more stable price structure can be maintained.

That such a stabilizing influence may be needed during emergency periods is demonstrated by the action of prices just before and during the first World War. At that time, the price of manganese rose from 26 cents per unit to \$1.25. This increase was brought about by the booming manganese needs of the iron and steel industry, and the shortages of available manganese caused by war conditions.

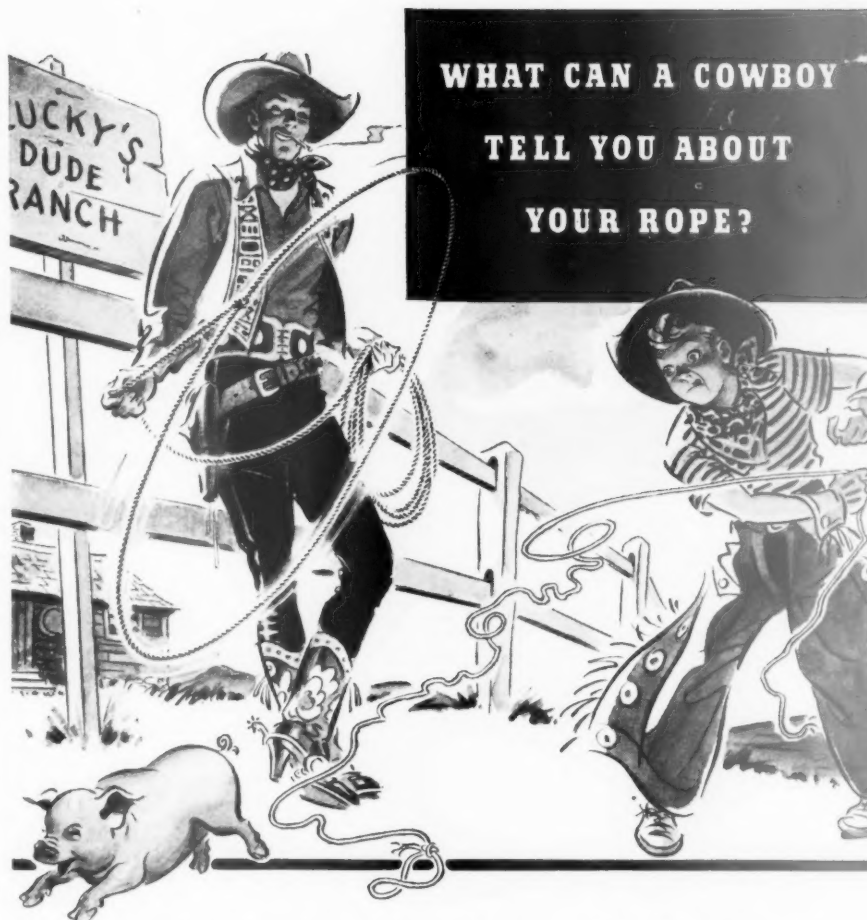
During a war period, so many factors enter the picture when materials have to be imported that possibly the only means of insuring a supply is the building of stockpiles. During the last war, a shortage of coal in Brazil closed down the Brazilian manganese mines, and these did not resume operation until the United States was able to ship coal down to the Latin American country.

The current purchases of metals and rubber at approximately the market price will have a tendency to keep the price of these commodities at a point near the current price.

The prices of tin, which varied from between 42 cents and 86 cents during the last war, could be pretty much pegged at around 50 cents a pound if the Secretary of Commerce has such a price-fixing intention. Naturally, in the case of copper, where the Government purchases amount to between two and three months industrial requirements, it would be the tail wagging the dog to suggest possible price control on the part of the Metals Reserve Company. Several hundred thousand tons of copper are not, however, an inconsiderable amount, and they do exercise a stabilizing influence on the price.

The operation of the stockpile program depends primarily on how much time there is remaining in which we can peacefully accumulate rubber and metal reserves. The element of time cannot be controlled by any corporation, company or person.

However, discussion of the stockpile program with Secretary Jones gives the definite impression that if it is humanly possible, there will be no shortage of materials for industry, and that the entire program will be directed toward maintaining an even keel for American enterprise.



• You may never do any "wranglin'" or "cow punchin'" but the *right* kind of rope is just as important to Industry as it is to cowboys!

Cowboys know their ropes and Plymouth Lariats are preferred by ranchmen and rodeo ropers almost without exception. All because Plymouth engineers set to work to produce a better lariat, of finest Manila rope, of great strength, and twisted just tight enough to give it the proper "sail" for accurate roping.

Careful research and technical skill have developed specialized types of Plymouth Rope and Twines for every cordage need in Industry—for Manufacturing, Mining, Contracting,

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Controlled manufacture by Plymouth insures positive uniformity, flexibility, correct lay and lubrication for each type of rope.

There are certain factors of safety in the use of rope slings and lashings, certain weight and strength data, correct ways of reeving off a set of blocks, and other valuable information that should be known by all men in Industry. Much of this valuable information is contained in the Plymouth booklet—"Lift It Safely"—sent free on request.

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City _____ State _____



When writing Plymouth Cordage Company please mention Purchasing

PERSONALITIES

in the NEWS

James W. Rees has been appointed Assistant General Purchasing Agent of the Pure Oil Company, at Chicago. Mr. Rees has been with the company since 1925, and was stationed at Columbus and Pittsburgh before coming to the Chicago office as office and employment manager. He is a Vice President of the Office Management Association of Chicago and a member of the Chicago Association of Commerce.

Russell Forbes, Commissioner of Purchases for the City of New York, and his outstanding record in the cause of better public purchasing are the subject of a feature article in the February 2nd issue of *This Week*.

A. L. McKinnon and **A. W. Morris** have been appointed Assistant Purchasing Agents at the Harbor Island Plant of the Seattle-Tacoma Shipbuilding Co.



N. O. AEBY

Norman O. Aeby has been appointed General Purchasing Agent of the Johns-Manville Corp., New York City, supervising the buying for the company's fourteen plants and asbestos mine. Mr. Aeby has been with the Johns-Manville organization since 1926, serving eleven years as Purchasing Agent at the Waukegan (Ill.) plant, and for the past four years as Acting General Purchasing Agent at New York. Prior to that, he was Purchasing Agent for the Jeffrey Mfg. Co. at Columbus, Ohio. He has long been active in association work, being one of the organizers of the Columbus Association and of the N.A.P.A., serving on the first National Board of Directors in 1915 and personally assisting in the organization of the groups at Cincinnati, Springfield, Toledo, and other mid-western chapters. At the present time he is a member of the Executive Committee of the New York Association.

Charles R. Sherman has been appointed Purchasing Agent for the General Printing Ink Co., New York, succeeding John K. Conant, whose resignation was reported last month. Mr. Sherman was transferred to his new position from the sales department of the company.

H. J. Linnevers, Cleveland Purchasing Agent for the American Radiator & Standard Sanitary Corp., has been placed in charge of the company's branch in Mansfield, Ohio.

J. Rolland Gould, Purchasing Agent of the Simonds Saw & Steel Co. at Lockport, N. Y., has been appointed a member of the Defense Council in that city.

Harold W. Edwards, Assistant Purchasing Agent of Lever Brothers Co., Cambridge, Mass., has been elected a member of the Board of Managers of the Farm & Trades School, of which he is a graduate.

David H. Thomas, Purchasing Agent of the Utah-Idaho Sugar Co., Salt Lake City, has been elected first vice president of the Utah Manufacturers' Association.

Mail 12 Page Report



FOR THREE CENTS

with Neenah Thin Paper

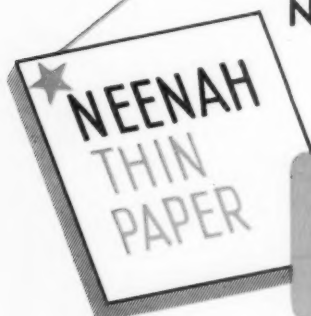
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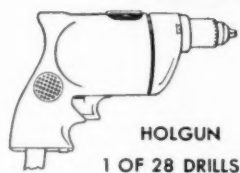


Emery Dust entering the vital parts of ordinary sanders causes breakdowns and costly tie-ups. Black & Decker Electric Sanders entirely eliminate this hazard. All the mechanism of B & D Sanders (except "Junior") is completely sealed against dust and grit. Switches are fully enclosed so that no abrasive can reach them. Commutator and brushes are fully protected by a seal ring set between commutator and air intake. All bearings are grease-sealed against destructive grit. These Sanders will speed up your work, because they run cool and stay on the job without frequent maintenance.

B & D Sanders smooth welding and casting ridges—remove paint, rust scale—shape timbers and surface tile, concrete, stone—produce a faster, smoother finish on all sanding operations. There are five Black & Decker Sanders in the complete line for every type of sanding job from light to heavy duty. Phone your jobber today for a demonstration, or wire: The Black & Decker Mfg. Co., 764 Pennsylvania Avenue, Towson, Md.

"ELECTRIC TOOL HEADQUARTERS"

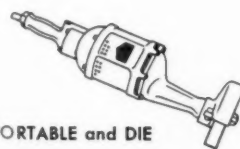
LEADING DISTRIBUTORS EVERYWHERE SELL



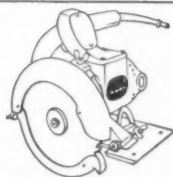
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GRINDERS, 9 MODELS



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PORTABLE ELECTRIC TOOLS

When writing The Black & Decker Mfg. Co. please mention Purchasing

C. D. King, Purchasing Agent of the Virginian Railway Co., Norfolk, Va., has been named acting general manager of the company. Mr. King has been associated with the Virginian Co. since 1911, became general storekeeper in 1920, and Purchasing Agent in 1924. F. C. Holton, formerly assistant superintendent of motive power, has been appointed Purchasing Agent.

H. Fred Feagans, for the past thirty years Purchasing Agent for the Sperry Flour Co., San Francisco, has retired from active business. Mr. Feagans started in purchasing work with the Hoyt Metal Works, St. Louis, in 1904.

From 1906 to 1911, he was General Purchasing Agent for all the western Guggenheim interests, buying for mines, railroads and smelters from Alaska to Chile, with headquarters in San Francisco and Salt Lake City. Since 1911 he has been associated with the Sperry Co., two years as manager of all bag interests for the parent company, General Mills, in Minneapolis, but chiefly as Purchasing Agent in San Francisco. He was a charter member of the Northern California Association in 1916, and president of that organization in 1919. He was instrumental in forming the Western District Purchasing Agents' Association, which functioned actively from 1920 to

1924, embracing the entire Pacific Coast. In 1923, when the Northern California group joined the N.A.P.A., he was elected National Vice President, representing the western associations. He has been consistently active in association work up to the very time of his retirement, serving on the Executive Committee, the Finance Committee, and the Commodity Committee of the San Francisco group, and for many years as chairman of the N.A.P.A. Textile Committee. The Northern California Association has elected Mr. Feagans to honorary membership, and a luncheon meeting last month was designated as "Fred Feagans Day" in recognition of his long and outstanding record of service.

MISS MURPHY, write for up-to-date information on painting concrete and brick walls and floors



And Miss Murphy can get this information by sending for a copy of the book, "How To Paint Concrete, Stucco, Masonry and Other Surfaces." Every purchasing agent should have a copy of this book telling about a specially prepared water hardening paint that will not chip or peel, and which can be used for dry or damp, exterior or interior concrete, stucco or brick surfaces.

Medusa Portland Cement Paint with its cement base is made exclusively for concrete, stucco and brick. Mixed with water, this economical paint is easy to apply and keys itself permanently to the wall. It's perfectly suited for industrial exteriors and interiors, also warehouses, conduits, smokestacks, etc. Available in eight colors, black and white, it makes a permanent, hard finish, unaffected by lime, alkali or water. For concrete floors use Medusa Floor Coating, a paint that positively sticks to concrete; is lime, alkali, water and abrasion resisting. But send for the book describing these paints.



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William F. Drevant, formerly Assistant Purchasing Agent of the American Blower Corp., Detroit, and more recently on the sales staff of the Duncan Steel Co., has entered business on his own account as the Huron Steel Co., Detroit, maintaining a complete warehouse stock of carbon and alloy steels, drill rods, and shafting.

Lee Clayton has been appointed Purchasing Agent for the Philip Carey Co., Cincinnati, succeeding William H. Scobie, who is retiring from active business after many years in that office. Mr. Scobie was a charter member and first president of the Cincinnati Association, and has been elected to honorary membership in that organization.

J. E. Lautsbaugh has been appointed Director of Purchases for The Crosley Corp., Cincinnati. Prior to his appointment, Mr. Lautsbaugh had served for 22 years as Director of Purchases for the Westinghouse Electric & Mfg. Co. at Mansfield, Ohio.

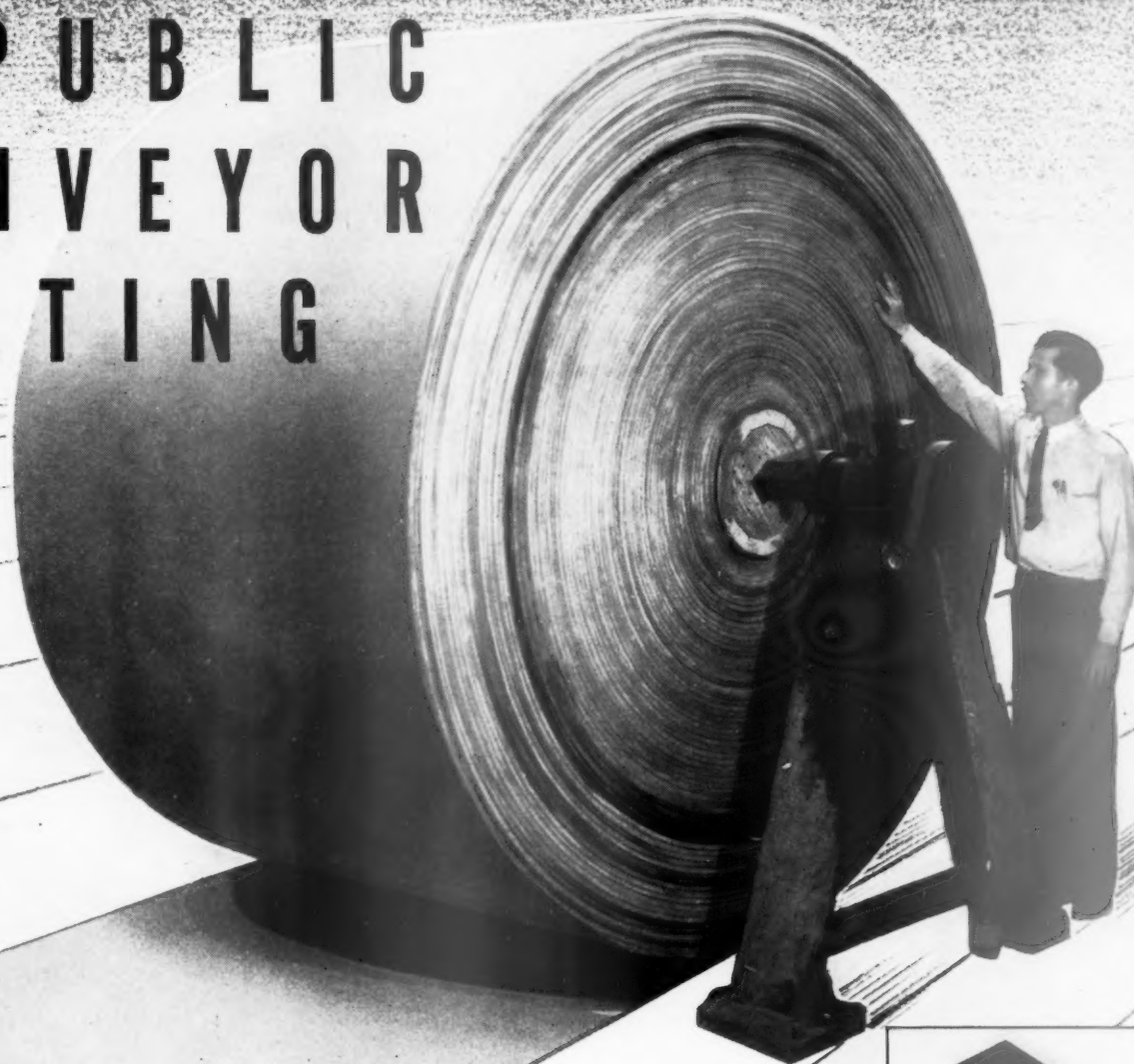
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25-YEAR SERVICE RECORD



Jesse C. Davis, Purchasing Agent of The Reliance Electric & Engineering Co., Cleveland, recently completed a quarter century of service with that organization. The occasion was celebrated at the company's annual "Old Timers' Dinner," February 1st, when President C. L. Collens presented Mr. Davis (right) with a Hamilton watch in recognition of his long and able service. Mr. Davis is a past president of the Cleveland Purchasing Agents Association.

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Budget Control of Materials

MATERIALS or purchases in the average industrial plant represent approximately 60% of the sales dollar. I have always been impressed by the fact that the lack of proper material control, or the absence of a policy to correlate purchasing needs, are responsible for much of the difficulty when corporations run into trouble. A great many concerns

have been forced into receivership because of an unbalanced inventory. Others are unable to maintain proper production schedules because the right material

is not available. In other cases, excessive costs for handling and storing material, too great inventory investment, and losses from deterioration, obsolescence, shrinkage, and downward changes in prices, require unnecessary borrowing or the use of funds which could be used for other purposes.

This emphasizes the importance of budgetary control for keeping expenditures within limits and proper channels. No one item demonstrates as clearly the losses, expenses and costs resulting from the absence of a policy. None will respond so quickly where thought and intelligence prevail.

Setting a Budget

The purchasing budget should be prepared from the master budget, expressed not in terms of dollars and cents but in commodities desired. With the commodity classification of our products we have a better picture of what we are prepared to furnish, be it so many tanks in our business, or so many steam shovels in another.

With dollars and cents it is possible to have purchases fill in the wrong channels. But if we know what commodities we contemplate producing it is an easy matter to fit these commodities into the dollars and cents volume. In other words, through proper forecasting it might be possible to purchase the proper type and kind of commodities which management and/or the sales department contemplate selling, and if through proper forecasting the purchasing department knows definitely that certain numbers and kinds of commodities are being planned on, and probably will be produced, they can no doubt purchase to better advantage. They will also know when the material should be on hand.

This budget, if it is to be workable, must be flexible. If, at the beginning of the season or year, we decide to produce so many units—say 100,000—and we find after six months' operations that we may sell considerable more, let us do something about it before we run out of the material. Or if we are to sell only 50,000, we may be able to hold up delivery of the material. In other words, we may forecast sales at the beginning of the year and develop the budgets, but unless we sit down after two or three months' operations and review them, they are absolutely worthless.

It is rather interesting, in analyzing balance sheets, to look at the amount of cash in the bank and also look at the total assets, which may contain a lot of

Abstract of an address before the Milwaukee Association of Purchasing Agents, February 11, 1941.

By C. E. STENDER

Vice President, Milwaukee Chapter
National Association of Cost Accountants



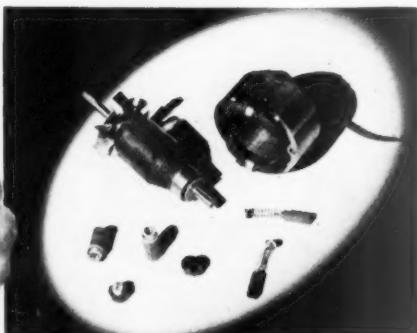
THAT EXTRA SOMETHING

● Distinction in an individual may be one of a number of things . . . refinement, character, breeding, poise. In a Dumore motor it's the combination of a lot of little extras . . . refinements in design and construction . . . care and inspection in manufacture . . . that imparts extra hours of productive power. Thus Dumore motors contribute extra value to business machines, medical devices, household appliances, portable electric tools or other equipment they are called upon to power. In some instances Dumore furnishes complete units . . . in others, where a manufacturer makes his own housings, Dumore matched motor parts are supplied, for they, too, have "extra power hours" built into them. So, you see, however peculiar your power problems may be, if it's a fractional horsepower motor you need, Dumore engineers can solve it. Write for facts . . . no obligation.

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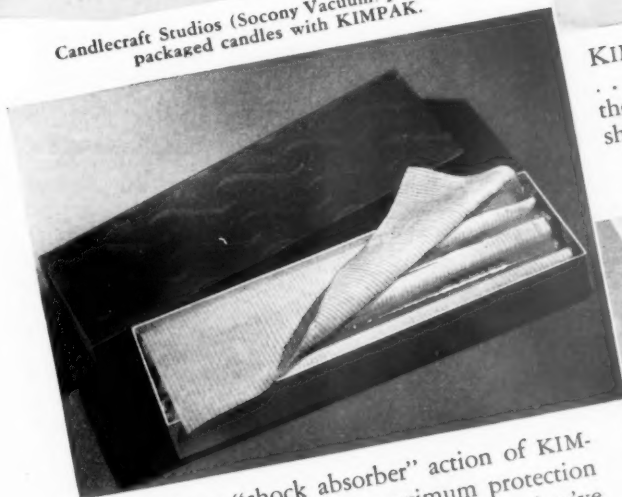
Today—everything is designed to beautify as it protects... from the clothes we wear to the rugs on our floors.

Likewise—KIMPAK Crepe Wadding is designed to "dress up" your package while protecting it against mars and breakage.*



Showing how Lightfoot Shultz Co. use KIMPAK in their beautiful American Regency Soap package.

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miscellaneous items. But how many of us look at the items of inventories and really study them? We learned, within the past few years, of a certain corporation which did have rather a sizable inventory on the balance sheet, but upon investigation found that the inventory was not actually there.

We do not deliberately try to conceal the fact that our inventories are not up to 100%. Nevertheless, I think if we will scrutinize them we will find a great many things which are carried on the books at prices considerably higher than they are actually worth. There are storerooms filled with materials for which there is no immediate use, also material that is obsolete, and manage-

ment is unwilling to take the loss until it is too late.

Standard Specifications

One of the most important items with which to begin a control is material specifications. One of the hardest things to do is to get the engineering department to work up proper specifications for a given product and keep such specifications up to date so that it will not be necessary to furnish a great many substitutes for what should actually go into the product. With the proper materials specifications on hand, ordering can be done largely from the records. The Purchasing Agent's time can then be used for better and bigger things. It

would also eliminate the necessity of lengthy requisitions, because storekeepers need only report the quantities required, in conformity with detailed specifications.

As it functions with stores, so would it function with planning, production, and finally shipping. Further, through material specifications management is informed on excessive usage, waste, raw material trend, and other controllable elements. The sales department would use the specifications as a basis for pricing, advertising, and assurance that the factory will ship what the salesman set forth to his customer.

Another item is material standardization. As a by-product of specification, many time and dollar savings develop. Draftsmen and engineers observe similarity of parts, and with minor changes plan for interchangeability which permits of inventory reduction. For instance, we were using several different types of bungs for barrels. We would run out of one type, substitute another, and if we ran out of that type we would substitute still another. This had been going on for years when we had occasion to check certain specifications on bungs and found that we had accumulated several types because of certain customers' immediate requirements. We were able to eliminate all but one, and standardized on that. In other words, the sales department should sell our standards and not make up a special item to suit every person unless sizable quantities warranted it. In being able to standardize on this one type of bung, we were able to cut our inventory considerably and also were able to keep a better control on this type of product.

The Purchasing Factor

A production committee can, and should be, organized in which the Purchasing Agent should take a very active part. Meeting with the production committee, he can keep in touch at all times with what is being contemplated in the plant. He can forecast his purchases far better than trying to act according to previous trends and his previous experience, because as business changes so must he change his methods of purchasing.

The Purchasing Agent should also be taken into consideration, as well as the production department, when planning new products. He comes in contact daily with persons selling new types and designs of commodities. When plans are made for new products, he can lend a hand and advise the committee relative to proper quantities which can be bought and produced most economically.

Stock Records

The stock record is the heart of inventory control. If proper records are maintained it will be possible to indicate monthly and seasonal consumption. It should throb to the pulsation of the business. This means that it should be posted to date at all hours. It is recommended that orders be posted to stock

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Please forward without obligation a copy of Catalogue 410.

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When writing Johnson Bronze Co. please mention Purchasing

records when received instead of when they are shipped.

The two words *Maximum* and *Minimum*, which appear in practically every stock record, are perhaps the most misused words on material control. In many cases, maximums should be minimums, or *vice versa*, depending upon the volume of sales or production being contemplated. Maximums and minimums can become as stagnant as a pool of water, and if this is the case the business is just dying by inches. There is the possibility that the purchasing department is not purchasing sufficient material, or is purchasing too much. If management, purchasing, production, and sales departments work closely together and discuss requirements, instead of depending on a mechanical formula, these dangers can be avoided.

Every dollar of sale has a certain relationship to material. A prominent industrial engineer once said, "Somewhere, somehow, sometime in the universal set-up of things a relationship will be found to exist between all things that function to a common end." All business is alike; somewhere there is a common denominator. Where a company manufactures several different types of articles, it may be necessary to segregate the material into several classes; yet it is still possible to develop a ratio of inventory on hand to orders on hand.

Suppose we take our unfilled orders at the end of each month in dollars and cents as a whole, figure what our material content should be, and from this determine whether our inventory is in or out of line. This has been found to be one of the best methods making for maximum inventory turnover. A report indicating orders entered, shipments scheduled, schedules broken and causes thereof, often discloses weakness, and makes for better control and resultant savings.

One of my pet peeves is to break down and classify inventories as to type and kind of commodities. For example, we may have a certain prevailing type of product which is being built. In this product may be several different types and kinds of parts. We may be able to segregate the larger items in this particular line of goods. We may have steel or small parts that go into the product, such as bolts, nuts, and other major lines of material. If this material is broken down into each line of product, or type and kind of material, the comptroller's department and the purchasing department would be able to watch the trend more closely and keep inventories from getting out of line. If, on the other hand, we throw this all into one great big lump and call it material and supply inventory, also goods-in-process, we may be sure of one but altogether wrong on the other, for through such lumping it would be impossible to offer the proper kind of control.

Slow Moving Items

Another thing that should be done is to age all inventories. Is there any reason for carrying on the books, at 100 cents on the dollar, items which we may

have had for the past five, ten, or possibly fifteen years? It would seem to me that the more quickly we get rid of this material, get it off the books—possibly sell it for scrap, realizing as much as we can and taking the loss immediately—the better it would be.

I recall certain materials that were bought to individual customer's specifications. These items might be anywhere from five, six, or seven years old, and then all of a sudden somebody would get the bright idea that we had too much of it on hand and begin to scrap it. When occasions such as these arise, very little consideration is given to that which may or may not be obsolete, and a great many times material is scrapped when it

might be salvaged or possibly used for other products.

Supposing we had several thousand dollars of this money tied up for a good many years. Even at 2% on the investment, you can imagine what this would amount to over a period of years. You can also figure out what was paid on this material in the way of taxes during these years. Even though we were to turn this in to take our loss, I do not believe we could get back—even at the low figure of 2%—what it had actually cost us in the way of storing, handling, moving it from one place to another, etc., not taking into consideration the original cost of the material.

The cost of carrying an inventory is



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If there were just *one* stainless and heat-resistant steel, instead of dozens of variations, life would be simpler for us and a lot tougher for you. In fact, after one trial, you'd probably swear off stainless forever.

But we make stainless *to fit*—produce it with the proper analysis, physicals, etc. to meet the eventual conditions of service, yet fabricate easily and inex-

pensively in your plant. And we *continue* to produce your particular grade in close uniformity, lot after lot.

That's a job which calls for the technical skill and experience of a pioneer. It's something for you to remember, along with the fact that Allegheny Stainless is produced in every needed form or shape, and available from convenient stocks nationwide.

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When writing Allegheny Ludlum Steel Corporation please mention Purchasing

made up of insurance, taxes, rent, interest, deterioration, and obsolescence. Trade association surveys prove this cost to run as high as 20% for some manufacturers. Every \$100,000 reduction in inventory means an approximate annual saving of \$20,000. Every million dollar reduction means a saving of \$200,000. Isn't it worth while to go after this material account and do something about it?

The comptroller's department must have at its fingertips all the costs which go to make up the business, be it sales, materials, labor, expense items, supplies, burden, etc. I am not in a position to say for your organization what is the cost of handling inventory, or what

turnover should be expected. But if each Purchasing Agent will contact his own comptroller, he could obtain some pretty good ideas on these points, which would be helpful as a guide on what material should be purchased, how much, how it should be shipped, etc.

If we give consideration to some of the matters mentioned, they will have a tendency to:

1. Reduce the inventories and thus effect a saving of considerable amount.
2. Increase inventory turnover, which will improve the financial position.
3. Utilize plant facilities to maximum capacity and keep investments at the lowest possible minimum consistent with efficient operation.

4. Assist the factory management to maintain delivery promises.

5. Provide tools for executive control of purchasing.

6. Reduce overhead costs.

7. Reduce the direct labor cost and make it possible for labor to earn more money, and in these days this is of great importance.

1 1 1

FORUM ON ARMY PROCUREMENT

An informative question and answer forum on Ordnance Procurement methods was conducted by the New York Post of the Army Ordnance Association at the Engineering Societies Auditorium, New York, February 24th. For this meeting, the first of its kind, a board of experts including officers of the U. S. Army Ordnance Department, representatives of the National Defense Advisory Commission, and industrial executives working on ordnance contracts, answered questions and gave helpful advice to those directly or indirectly engaged or interested in manufacturing ordnance material. Among the questions considered were:

How is National Defense business obtained? (a) Prime contracts. (b) Sub-contracts.

What are the various forms of government bids? (a) Formal. (b) Informal. (c) Negotiation.

What are the types of contracts? (a) Fixed price. (b) Cost plus fixed fee. (c) Letters of intent.

What are the labor provisions in government contracts? (a) Deferment for selective service. (b) Employment of aliens. (c) Walsh-Healy Act. (d) The 8-hour law.

How may financial assistance be obtained? (a) Banks. (b) R.F.C. (c) Advance payments. (d) Assignment of contracts.

How are government contracts administered? (a) Inspection, prime and sub-contracts. (b) Aids to manufacturer. (c) Payments.

What special tax provisions apply on government contracts (a) Amortization.

How does the government aid in procuring additional plant facilities? (a) Emergency plant facilities. (b) Leasing government tools. (c) Buying government commandeered tools. (d) Preference rating system.

1 1 1

PURCHASING PROBLEMS DISCUSSED AT IRON AND STEEL CONFERENCE

One of the group meetings at the 17th annual conference of the Iron, Steel and Allied Industries in California, held at Del Monte last month, was devoted to purchasing problems. Lyman Waters, Manager of Purchases and Stores, Standard Oil Company of California, San Francisco, presided at this session. E. F. Watkins, Manager of Purchases, Southern California Edison Co., Los Angeles, led the discussion on "Purchasing for Defense and Commercial Needs."

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Steelbrite is a proven product. During the past few years it has been completely tested under all conceivable conditions, including export shipping with its salt water hazard. Steelbrite may be used on shelf goods and on other products packed for eye-appeal. It will not stain the wrapper or carton.

The price is very much in line... only fifty-five cents in drums. And Steelbrite goes a long way. Why not write today for a trial gallon? Only ONE company among those adopting Steelbrite has ever discontinued its use. There must be something back of a record like that. May we have your order for a trial gallon?

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AN IMPORTANT TRAINING PROGRAM CONTINUES

In determining whether to employ Seamless Steel Tubing for a specific need, the purchaser is aided by direct, first-hand information based on experience both with the manufacture of the tubing and with modern fabricating practices.

To provide this help, Ward's have insisted that on the staff in each warehouse there be men who are thoroughly familiar with all processes in the making of seamless tubing . . . men who know the behavior of tubing under the broad variety of fabricating and machining conditions.

For months past, Ward men have been studying in the mill of Ward's affiliate, Summerill Tubing Company. Each man spends from eight to twelve weeks, staying in each department until he has grasped the full significance of operations. Full grasp means that he can interpret the manufacturing procedure in clarifying terms for the aid of the buyer or user of tubing.

• • •

We say that the training continues. In this period, when the activity of the steel industry is at its highest peak, many excuses could be found to justify deferment of the program.

The reason for continuance is that the uses of Seamless Steel Tubing are growing and, with them, the need for authentic information grows also. To keep on with the training, even of Ward men who have been with us for as much as twenty years, is the only action we can contemplate.



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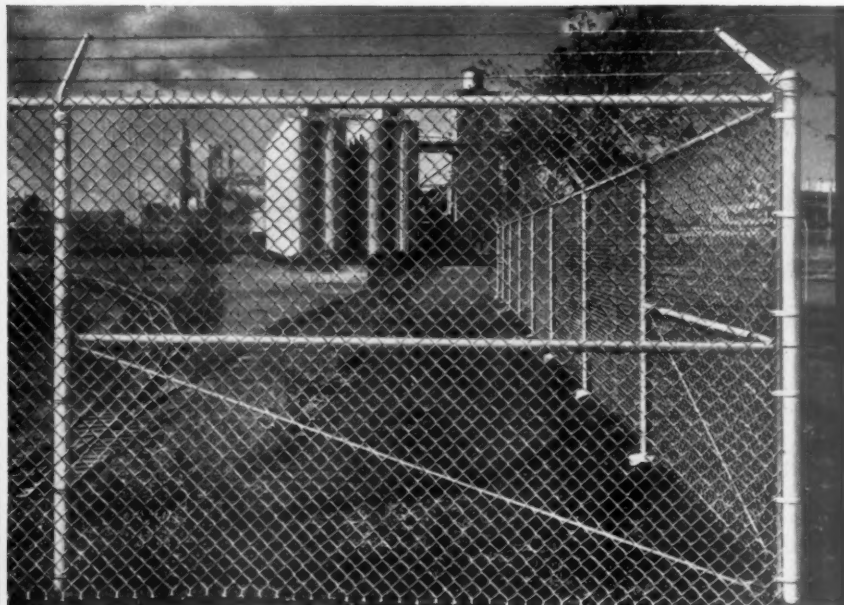
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INDUSTRIAL DIVISION

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CINCINNATI PURCHASING REPORT

Harry F. Wagner, City Purchasing Agent at Cincinnati, has issued a very attractive mimeographed annual report of 12 pages and paper cover, enlivened by a number of drawings indicative of various phases of departmental work and a pictorial chart listing the thirty leading classifications of municipal purchases during 1940. The entire report, besides setting forth the fundamental statistical data concerning departmental work, is presented in sprightly and interesting narrative style, well calculated to serve its secondary purpose of reaching interested taxpayers, informing them on how the tax dollar is expended and giving a well rounded picture of the purchasing organization and its work.

The department expended a total of \$4,221,120 during 1940, at an operating cost of $\frac{2}{3}$ of 1%. 9,207 requisitions were handled, resulting in 306 Board of Control Recommendations, 400 formal contracts, 215 informal purchase agreements, and 17,118 purchase orders. Approximately \$33,495 was earned in cash discounts, and disposition of obsolete materials accounted for another \$45,565 returned to the City treasury. Largest expenditures were for contractual services (competitive), 15.9%; paving, road and building materials, 11.3%; contractual services (non-competitive, such as telephone, telegraph, gas and electric, rents, transportation, etc.), 9.3%; food products, 8.3%; coal and coke, 8.2%; iron and steel, castings and forgings, 7.9%; automotive equipment, parts and accessories, 7.4%; construction, engineering, road building, plant and factory equipment, 4.5%; lubricants, oils, greases and gasoline, 3.7%; drugs and chemicals, 3.4%; clothing, textiles and notions, 3.2%.

The stores division, financed by a revolving trust fund, not subject to annual appropriation, filled 2,575 requisitions valued at \$36,306.75, and showed a year-end inventory of \$18,000.36. Total expense for this division was \$2,149.97, including the salary of the Storekeeper, who also checks receipts and does what inspection is possible on incoming deliveries.

The reproduction division, equipped with mimeograph, blueprint, photostat, photographic, multigraph and multith facilities, reduced its rates to the various city departments this year, yet showed an operating surplus of \$1,701.46. The division also undertook the training of four young men assigned to it by the National Youth Administration.

A change in contracting procedure instituted this year was the extension of certain contracts for three, six, nine or twelve months, by means of a mutual agreement clause, which has resulted in staggering the expiration dates on requirement contracts and greatly mitigating the year-end rush in making new contracts for the ensuing year.

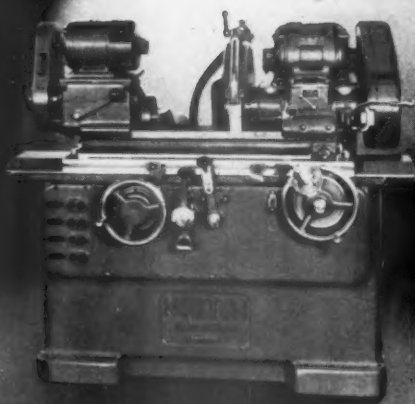
The Purchasing Agent testified several times before the Bituminous Coal Commission in Washington in connection with a petition for exemption from

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A pound or a carload, for laboratory or plant. Whenever you need chemicals for any purpose, call Harshaw for quick shipment . . . Plants in Cleveland and Elyria, Ohio, and Philadelphia, Pa. . . Stocks close by . . . *Industrial, technical, reagent, and C.P. chemicals, and laboratory apparatus.*

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CINCINNATI OFFICE: CAREW TOWER

transportation rates designed to equalize river shipments with rail shipments to destination. He was instrumental in securing a temporary order permitting purchase at "free alongside" prices, representing a saving of approximately \$1.00 per ton under the original ruling.

Mr. Wagner has also been active in the Coordinating Committee of Purchasing Agents of Hamilton County, a voluntary cooperative arrangement by which the purchasing agencies for the City, the County, the School Board, the Public Library and the University of Cincinnati have studied mutual problems and have effected some joint contracts to the benefit of their respective organizations.

1 1 1

WIDER USE OF PLASTICS IS URGED

E. R. Stettinius, Jr., Director of Priorities for the Office of Production Management urges all manufacturers who have not already done so to give immediate attention to the development of plastics, in the interests of conserving the supply of certain metals vitally needed in defense industries, such as aluminum, magnesium, and zinc.

Mr. Stettinius pointed out that the United States Bureau of Standards maintains a Plastics Section headed by Dr. Gordon Kline, which is able to give advice to those manufacturers interested in the possibility of developing plastics to meet problems in their manufacturing processes. He also referred to a meeting of the Plastics Defense Committee of the Society of the Plastics Industry in Washington on February 21, to discuss with Army and Navy and other Government officials the increasing emphasis on the importance of industrial plastics. Suggestions for increasing the use of plastics for both defense and non-defense purposes were taken up at the meeting.

Mr. Stettinius said:

"The impact of the rapidly developing defense program on our economic system now makes it imperative that certain vitally essential metals be conserved as much as possible for primary defense purposes. This is especially true in the case of aluminum, magnesium, and zinc.

"With defense industries making compelling demands on the available supply of such metals, it appears that the supply available for other production in the non-defense sphere will be diminished.

"This means, in turn, that the whole question of plastics now becomes more important than ever before. A number of industries through their trade associations have already launched investigations to see how and to what extent they can expand the use of plastics in their products. We feel that manufacturers who have not yet done so should make similar efforts."

Industrialists in the United States have been giving increasing attention to plastics as well as to the use of other substitutes for a number of years. But the process of "designing into plastics" has

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• Cleveland Brand hexagon head cap screws made from 1035 steel, properly heat treated, are worthy of your investigation. Much stronger than ordinary screws, *they cost no more* in most sizes. Available from stock, fine or coarse thread, packages or bulk, all sizes. Ask for samples, Catalogue E and current discounts. THE CLEVELAND CAP SCREW COMPANY, 2934 East 79th Street, Cleveland, Ohio.



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96% of the machine shops and tool rooms use ARMSTRONG TOOL HOLDERS, for their daily work . . . "Save All Forging, 70% Grinding and 90% High Speed Steel" on all ordinary operations, yet, when the unusual job comes along they spend needless hours rigging up some special tool when there are efficient, inexpensive ARMSTRONG TOOL HOLDERS especially designed for every operation on lathes, planers, slotters and shapers, in stock at the nearest mill supplies house.

Among the less common ARMSTRONG TOOL HOLDERS that make otherwise difficult operations easy, is the ARMSTRONG Extension Shaper Tool illustrated above. Designed for cutting internal keyways and shapes and for other shaper work where extreme clearance is needed. It is an extremely rigid tool with a long stiff bar that takes ordinary square high speed steel cutters. It's a money-maker on "tough" jobs.

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been greatly accelerated in recent months by the development of the defense program. This is the case not only in the field of ordinary commercial production, but also in the production of military aircraft.

A number of aircraft builders are making elaborate tests to see how and where plastic materials may be used in place of metals, such as aluminum, in cowl covers, engine baffles and flooring.

The Bureau of Standards has under way a project, in co-operation with the National Advisory Committee for Aeronautics, to develop a new material suitable for aircraft uses. One of the major problems involved is the development of a plastic which could be used not only as a substitute for nonstructural parts, but also for those structural units subject to stress.

Broad attention to the possibility of developing plastics is also being given by automobile manufacturers and by the makers of refrigerators, washing machines, vacuum cleaners, and other household equipment. One project being considered would call for the construction of refrigerator frames entirely of plastics.

If the use of plastics increases, officials of the Division of Priorities feel that it will help to ease the situation caused by shortages of defense metals and, in addition, will serve to stimulate desirable activity in an industry which has wide opportunities before it.

1 1 1

EXPEDITES DEFENSE PRODUCTION

Indicative of production problems today, as well as a fine expression of practical Americanism, is the following letter which was circulated during this past month through all manufacturing and office departments of The Stanley Works, New Britain, Conn.

"To our Employees:

"I wish to call attention to the fact that, in our business at the present time, extreme emphasis must be put on the general public interest. This country faces a crisis such as the world has never seen. No well informed person doubts this. Our duty, therefore, is plain. We must and should do everything in our power to give the greatest possible service as quickly and as well as possible.

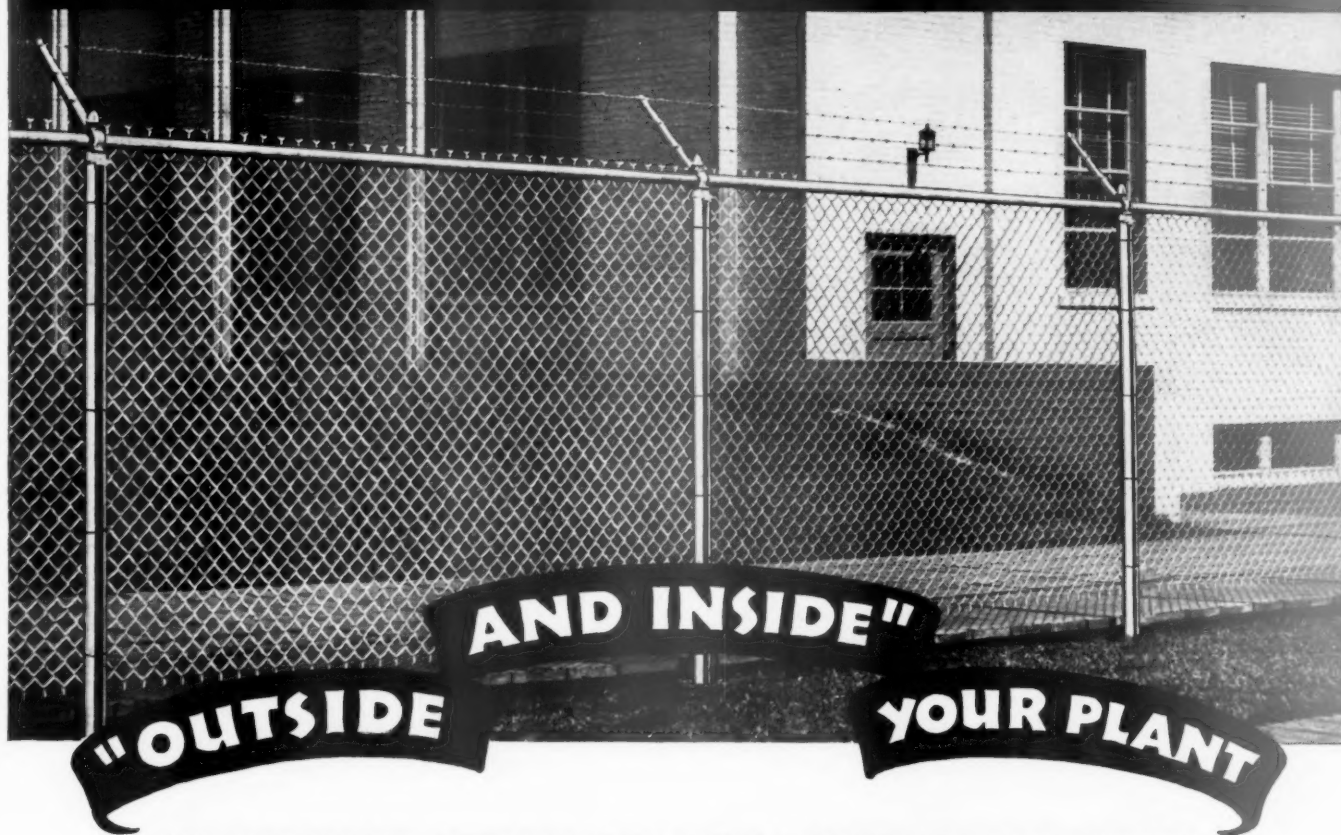
"To this date our employees have done a good job on such work as has been allotted to us, but I wish to remind you that our very best may fall far short of the needs of the hour and therefore I would like to have every Stanley Worker who in any way works on or moves items which are intended for defense, to do so with the feeling that he is privileged to strengthen America with each bit of extra thought and effort he can put into speeding on its way every article we are called upon to make.

"Good Americans will all pull together!

C. F. Bennett, President."

GOVERNMENT CONTRACT WORK

★ *Demands Protection* ★



AN ANCHOR FENCE AROUND YOUR PLANT WITH ENCLOSURES INSIDE, GIVES COMPLETE PROTECTION

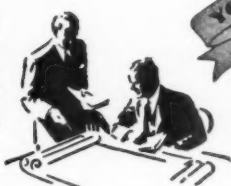
The moment you secure a Government Defense Contract—your plant and personnel are subject to danger from saboteurs and spies who are intent on destroying or hindering all Defense orders. Perhaps you've already installed a fence—to give you complete protection from outside sabotage agencies. But wartime conditions make it vital to raise similar impenetrable barriers *inside* your plant property—around power

stations, transformer installations, chemical storage, fuel supply to make definitely certain that only specially selected employees can reach these and other vulnerable points in your plant. Remember, there may be potential saboteurs on your payroll right now!

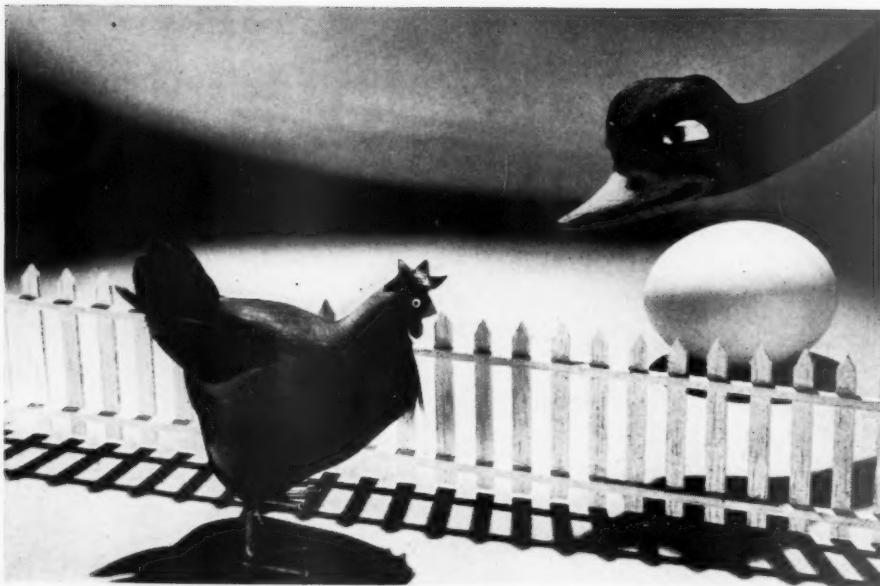
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NATIONAL STARCH PRODUCTS Inc.

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Chicago - Philadelphia - Boston - San Francisco—and All Principal Cities

WESTERN HEMISPHERE RUBBER

The U. S. Department of Agriculture and the Mexican Department of Agriculture are cooperating toward the development of Mexico as a major rubber producing area. To this end, an agreement was concluded last month for intensive scientific experiments. The United States is understood to have undertaken to furnish Mexico with all the necessary materials for the experiment, including superior rubber plants that will resist disease and grant high yields. Mexico, on its part, is said to have agreed to withhold the benefits of the experiments from "non-cooperating countries." This stipulation is understood to mean that countries willing to share experimental data might have access to plants developed in Mexico but that others "would have a difficult time" in sharing the benefits.

Experts of the two countries are confident that the Western Hemisphere can be made independent of the Asiatic markets within a generation, through the development of rubber production in Mexico and other Latin American countries including Costa Rica, Honduras, Nicaragua and Guatemala. Agreements are in process of being concluded with the latter countries.

NICHOLSON CONFERS ON CHICAGO PURCHASING ORDINANCE

Joseph W. Nicholson, City Purchasing Agent at Milwaukee, and a past president of the N.A.P.A., has been invited to appear before the Chicago Common Council in connection with hearings on an ordinance introduced by Alderman Paul H. Douglas, to create a central purchasing board for the Illinois metropolis. Mr. Douglas, who is Professor of Economics at the University of Chicago, is interested in centralizing purchases not only for the City of Chicago, but for its Board of Education, Park Board, Library, and other public agencies. Mr. Nicholson, a pioneer and leading exponent of municipal purchasing methods, has been exceptionally successful in organizing such cooperative organization for buying.



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. . . NEITHER IS A HAND CLEANSER WITH A pH RATING OVER 10**

A pH rating higher than 10 in an industrial hand cleanser shows an alkali concentration too strong for human skin. It causes dryness, chapping, cracking—loss of sensitive touch—lower efficiency—slower production. It's blowtorch cleansing under another form.

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3500 SEPARATE ITEMS

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Bethlehem now supplies steel pipe made by the Continuous Weld Process. This pipe, known as Beth-Co-Weld, is uniform in every respect, can be had either black or galvanized in exact 21-foot lengths, plus or minus one inch.

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BUYERS ARE ACTIVE IN TULSA A.P.I.

O. E. McClatchey, Purchasing Agent of the Barnsdall Oil Co., and chairman of the Oil Company Buyers Group, N.A.P.A., has been elected First Vice-Chairman of the Northeast Oklahoma Chapter, Division of Production, American Petroleum Institute. Mr. McClatchey will be in charge of programs for 1941. Other prominent Tulsa Purchasing Agents listed on the advisory committee of the organization include M. F. Bridges of Tide Water Associated Oil Co.; H. M. Cosgrove, Executive Secretary of the Tulsa Association; V. C. Fuller of Gulf Oil Corp.; W. L. James of Stanolind Companies; Egon Koehler of Power Machinery Co.; C. G. McLaren of Shell Oil Co.; L. M. Morris of Oklahoma Natural Gas Co.; F. W. Robertson of Skelly Oil Co.; and J. H. Wolfe of British-American Oil Producing Co. Howard Stover of Gaso Pump & Burner Mfg. Co., and Henry Hellinghausen of Oklahoma Pipe Line Co., former purchasing men now in executive managerial positions with their companies, are also serving on this committee.

1 1 1

PULP PRICES REAFFIRMED

Contract prices for pulp, which have been in effect since July 1, 1940, will remain unchanged through the second quarter of 1941. Higher prices may develop, however, for spot sales, due to the steady reduction of stocks available to converting mills. The upswing in paper and board production has been reflected in greater activity in the spot market. Domestic production of pulp increased sharply during the past year, but the bulk of this larger output is in the self-contained mills.

By the middle of February, the inch-hour ratio at board mills had advanced to 81%, which is close to actual capacity, and demand was in better volume than for months past. The paper production ratio was at 88.9% of capacity, with mill stocks in satisfactory position, orders running ahead of production, and shipments about equal to orders. New orders for kraft paper during the first three weeks of February are reported as 160% of capacity production levels.

1 1 1

Silas Rich, Purchasing Agent of the Seattle Board, has been elected assistant secretary of that board in addition to his purchasing duties. Mr. Rich is a past president of the Washington Association.

THE PURE OIL COMPANY

CHICAGO, U. S. A.

A COMPLETE LINE OF INDUSTRIAL PETROLEUM PRODUCTS
A Pure Oil engineer will help solve your lubrication problems. Write today.



Be sure

with Pure

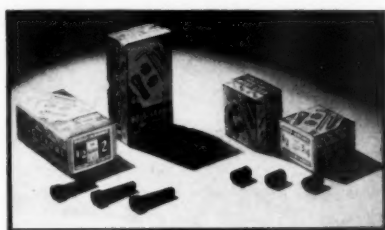
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NEW PAINT MATERIAL

A new grade of koroseal paint has been announced by The B. F. Goodrich Co., to be known as "Koroplate." It has been developed to protect metal surfaces against chemical reactions, and is recommended for service wherever extremely corrosive conditions disqualify other types of paint or coating. Koroplate is liquid at room temperatures and requires no heating before application. At ordinary temperatures it can be either brushed or sprayed, and can be thinned with either brush or spray thinners when necessary. It is made only a semi-gloss black, and must be used in conjunction with a Koroseal primer having similar characteristics. When thoroughly dry, the new paint is extremely resistant to the action of fumes and vapors from acids, alkalis and salts at room temperatures and slightly above. It is said to resist all acids except concentrated formic and acetic, and is not affected by brass, chrome, nickel, cadmium, zinc, copper, silver or tin plating solutions.

1 1 1

NEWLY DESIGNED BOXES FOR SCREWS



The Holo-Krome Screw Corporation of Hartford, Connecticut, manufacturers of fibro forged socket screws realize the importance of every merchandising feature which will aid the distributors of their socket screw products.

Industrial distributors and users alike, will be attracted by this new design which illustrates in a unique manner their various products.

The boxes are printed in a pleasing green on the strong, tough, brown fibre-board box stock. The identifying label giving style, size, thread, etc. which has always been outstanding for its clear-cut, concise data, is a component part of the new box design.

1 1 1

DAVIS IS APPOINTED

Col. Edward Davis, an executive of the Goldblatt Brothers store in Chicago, has been appointed State Purchasing Agent for Illinois, succeeding James A. Carruthers. The purchasing department comes within the State Finance Department, headed by George B. McKibbin.

1 1 1

S. V. T. Jeffery, Purchasing Agent for the Canadian Pacific Railway at Vancouver, B. C., has been elected president of the Canadian Pacific Association of Vancouver for the coming year.

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Metal Cutting

BAND SAWS

**LAST
LONGER
AND
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COSTS**

Continuous use has proved to operators that Lenox Band Saws last longer—do their job better—cut production costs.

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CARLOADINGS ARE RISING

A forecast of freight carloadings for this year and next year has been made by Ralph Budd, Transportation Commissioner of the National Defense Advisory Commission, indicating an increase of 9.4% in 1941 and 16.9% in 1942, as compared with the 1940 total. Mr. Budd's prediction is based on studies by the NDAC Bureau of Research and Statistics, covering commodities which represent 60% of all railroad carloadings. These estimates were translated into carload equivalents by the Association of American Railroads. The study includes both defense and civilian requirements in the United States, and British requirements.

The total increase in carloadings for 1941 is estimated at 3,426,628, or an average weekly increase of 65,900 cars above 1940. Loadings in 1942 are estimated to exceed 1940 by 6,140,373, or an average weekly increase of 118,100 cars. These figures indicate total railroad traffic in 1942 equivalent to about three-quarters of the volume handled in 1929, though total traffic, considering all types of carriers, is expected to be the largest ever recorded. An analysis by leading product groups follows.

Bituminous coal: 1941, an increase of 690,931 cars, or 12.4%. 1942, an increase of 1,465,422 cars, or 26.3%.

Iron ore: 1941, an increase of 535,849 cars, or 30.1%. 1942, an increase of 902,577, or 50.7%.

Lumber, shingles and lath: 1941, an increase of 125,142 cars, or 18.2%. 1942, an increase of 198,028 cars, or 28.8%.

Refined oils and gasoline: 1941, an increase of 88,175 cars, or 7.2%. 1942, an increase of 173,901 cars, or 14.2%.

Iron and steel shipments of all kinds: 1941, an increase of 326,440 cars, or 30%. 1942, an increase of 524,589 cars, or 48.5%.

Cement: 1941, an increase of 115,501 cars, or 22.3%. 1942, an increase of 182,324 cars, or 35.2%.

Automobiles, trucks, and parts, including tires: 1941, an increase of 204,270 cars, or 31.7%. 1942, an increase on 330,217 cars, or 51.2%.

Scrap iron and steel: 1941, an increase of 79,141 cars, or 26.6%. 1942, an increase of 128,827 cars, or 43.3%.

It is pointed out that any attempt at detailed long-range forecasting such as is represented in these estimates presents many difficulties, and that changes are likely to occur which would seriously affect the validity of the present figures. For example, it is quite within the realm of possibility that defense requirements might interrupt the course of coastwise shipping, thereby imposing on the railroads large tonnages of commodities which are now allocated to water-borne transportation facilities. In that event, the estimates cited above would be far too small. It is therefore planned to revise these estimates from time to time, giving effect to such changes and developments as they occur, and providing the best possible data upon which shippers and carriers alike may plan their operations for adequate service.

MINERAL OUTPUT AT HIGH LEVEL

The U. S. Bureau of Mines reports production of mineral products during 1940 with an estimated total value of 5.6 billion dollars, an increase of 15% in value as compared with 1939. It is the highest total reported since 1929, and is more than twice as great as during the depression years of 1932 and 1933.

A breakdown of the total into the three principal classifications reveals mineral fuels with a value of 3.1 billion dollars, an increase of 10%; metallic products with a value of 1.65 billion dollars, an increase of 28%; and non-metals with a value of .85 billion dollars.

There was a substantial tonnage increase in the production of both metals and non-metals, but analysis of the figures shows that the increase in value is attributable to a considerable extent to increased prices for metals. This price advance, besides contributing directly to the higher value per pound, was a factor in stimulating increased production. One outstanding example which runs counter to this generalization, however, is the case of aluminum, in which there was a price reduction during the year, contrary to the general trend. Thus, while U. S. production of primary aluminum exceeded the 1939 record by 26% in volume, the total value of this production increased by only 17%.

Output of iron ore in 1940 was the highest on record, except for the years of 1916 and 1917. Iron ore shipped from the mines is estimated at 74,969,000 long tons, valued at \$191,734,000, an increase of 37% in volume and 21% in value compared with 1939. The value of pig iron shipments increased 35%, ferro alloys more than 35%, and manganese ore about 45%.

The extremely high price for mercury prevailing throughout the year induced producers to virtually double their output in 1940, while the value was more than trebled. Domestic production of tungsten increased by approximately 20%, stimulated by active demand from the machine tool industry.

Only three metals registered a decrease in the total value of production during 1940. Platinum production was slightly lower, molybdenum declined about 25%, and chromite even more. In the case of molybdenum, this is attributed to the decline in exports which followed the establishment of the moral embargo in 1939 and the export licensing proclamation of July, 1940.

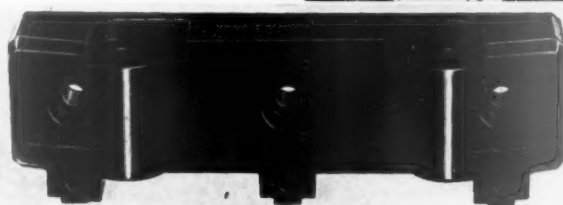
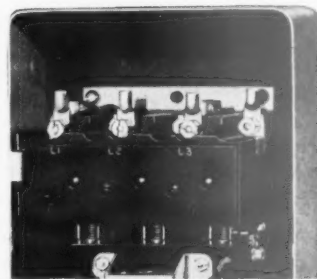
Accelerated industrial activity in 1940 created a higher demand for fuels. The increases in production of bituminous coal, petroleum, natural gas, and natural gasoline ranged from 5 to 15%, although anthracite production was about 3% below the 1939 level. The average values for petroleum and natural gasoline dropped, but there was some advance in values on the other fuels.

Crude petroleum production set a new high record of 1,352 million barrels, or 7% above 1939.

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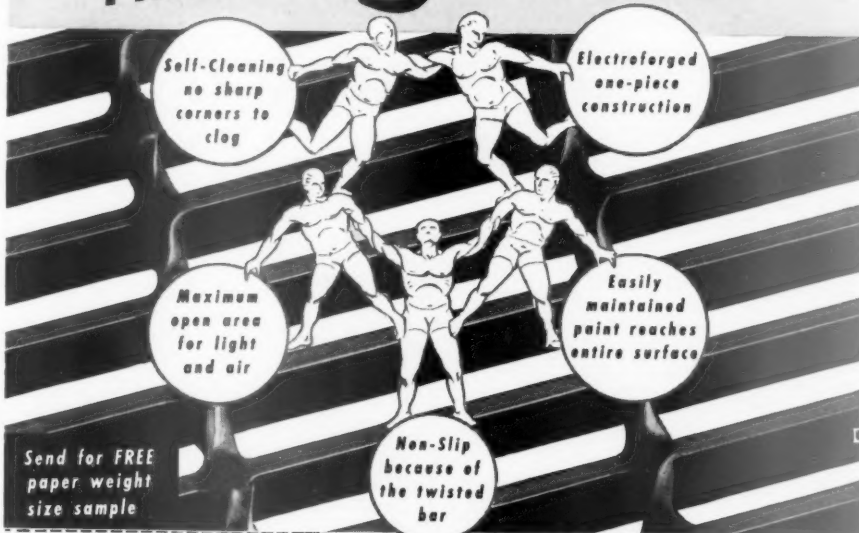


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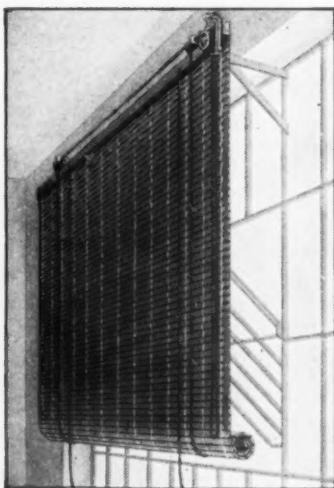
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177

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WOOL FUTURES CONTRACT

Effective March 17th, a new grease wool futures contract will be traded in at the New York Cotton Exchange, under the auspices of the Wool Associates. A special trading ring is to be erected on the trading floor for dealings in this contract, entirely separate from that on which wool top futures are bought and sold.

The trading hours for the new contract have been adjusted so that they will not conflict with the established hours for dealings in wool top futures, which will be unchanged. Business hours for grease wool futures will be from 10:10 A. M. to 2:40 P. M. daily, and 10:10 to 11:40 A. M. on Saturdays. Spot trading on the new exchange will be from 2:15 to 2:30 P. M. daily and from 11:15 to 11:30 on Saturdays.

The contract calls for delivery of 6,000 pounds clean weight of wool. The grease wool standard for the contract is a 64s quality graded wool, shorn from living animals in the United States, of good color, and of about 2½ inches average stretched length. Provision is made in the contract for deliveries of other grades at proper differentials, and also for some pulled wool and for foreign wools averaging 60s or finer.

The unit of price fluctuations will be a "point" equivalent to one-tenth of a cent per pound, which is the same unit used in trading wool top futures. However, since the contract calls for 6,000 pounds, each point represents six dollars on the contract, whereas the wool tops contract is for 5,000 pounds of top and each point represents five dollars on a contract.

1 1 1

LOCATION OF DEFENSE PLANTS

In line with strategic policies promulgated by the defense services concerned with new plant construction, new manufacturing facilities are being located chiefly in the interior. In the early months of the expansion program, such construction was concentrated in existing industrial areas, mostly along the Eastern seaboard. During the last half of 1940 and the beginning of 1941, however, the bulk of construction contract awards have gone to the East North Central Area, and nearly half of the total defense plant contracts have been placed there. As a result of this policy, the states of Ohio, Indiana, Illinois, Michigan and Wisconsin have taken the lead in defense construction activity.

Later this year the plants are expected to come into operation, and at that time the present geographic pattern of the distribution of defense production contracts will change accordingly, with a substantially higher percentage of orders placed in this central manufacturing territory, though it is not expected that there will be any diminution of volume among the established production plants of the East. The new balance is regarded as highly desirable from the standpoint of employment as well as military strategy.

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REPORT ON NEW YORK CITY PURCHASING DEPARTMENT

A series of reports on various departments of the city government has been undertaken by the Department of Investigation, New York City, as a means of making available to the public more information concerning the history, functions and accomplishments of the many individual divisions which make up the municipal government. To this end, a program of "internship for public service" has been undertaken, using more than eighty college students as research associates, working under the supervision of the Division of Coordination and Research, Department of Investigation. The staff of this Division consists of Dr. Harold Seidman, director; P. Bernard Nortman, economics advisor; Thomas J. Reynolds, statistics and taxation advisor; and Frederick L. Strong, legal advisor. William B. Herlands is Commissioner of the Department of Investigation.

The fifth in this series of departmental studies concerns "Centralized Purchasing in New York City," and has been prepared by Stanley W. Zeitlin of the College of the City of New York, directed by Dr. Seidman. The foreword states:

"The Department of Purchase is a comparative newcomer in the city's official family. It is a department which seldom comes in contact with the public and, consequently, less is known about it than the line agencies such as the fire and police departments. Nevertheless, the Department of Purchase is one of the most important cogs in the city's administrative machinery. Although faced with many obstacles at the beginning, the New York City Department of Purchase has already earned a nation-wide reputation and is generally regarded as a model for other cities to follow."

The opening chapter traces the history of centralized purchasing in New York City, starting with the unsuccessful attempt of the New York City Charter Commission in 1909 to establish a Bureau of Supplies with power to standardize materials used by the various departments and to do all purchasing for them. Although this proposal was rejected by the State Legislature, a Commission on the Standardization of Supplies was established the following year, which became the Bureau of the Standardization of Supplies in 1913. A picture of the purchasing situation at that time shows countless flagrant irregularities. Control was impossible while 120 city officials were vested with the power to purchase supplies, and there were 2,100 places where supplies could be delivered by vendors.

Under the leadership of Comptroller William A. Prendergast, this Commission worked out a plan of centralized purchasing, based on the successful prac-



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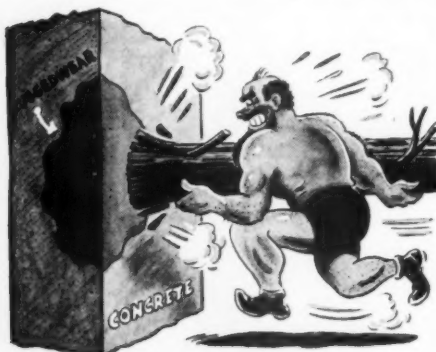
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tice of the Canadian Pacific Railway Company. This plan was put into operation in November, 1914, without legislative sanction, by Mayor Mitchel, to the extent of all departments of the city government coming under the direct supervision of the Mayor, and demonstrated very substantial improvements and economies.

In 1919, the State Legislature passed a bill containing several of the recommended provisions for central purchasing, but with limited jurisdiction. In 1923, the City Charter was again amended. A Department of Purchase was established, replacing the Board of Purchase and having power to purchase for thirty-four of the one hundred thirty-six departments and spending agencies of the city government. Viewed as a whole, the purchasing system was far from adequate or efficient, but during a decade of prosperity there was little clamor for economy or reform.

A distinct change occurred with the scandals of 1932, which were headlined by the retirement to private life of Mayor James J. Walker. Acting Mayor Joseph V. McKee, among other steps taken to place the city once more on a sound administrative foundation, appointed a Committee on Purchase in September, 1932, and this committee invited Dr. Russell Forbes, Professor of Government at New York University and a recognized expert on governmental purchasing, to serve as its consultant.

The report of this Committee, submitted in December, 1932, made specific recommendations for improvement of the purchasing system, summarized under four main points:

1. That the Department of Purchase be made the central buying agency for all branches of the city and county governments; that it be given the necessary powers to administer a central purchasing system; that it be reorganized to discharge its enlarged responsibility.

2. That the Department of Purchase have full responsibility for inspecting deliveries, pre-auditing expenditures, and auditing invoices.

3. That a Board of Standardization be established to revise existing specifications and to prepare and adopt new specifications.

4. That the city establish central storehouses and central repair shops.

These recommendations were embodied in a bill presented to the Board of Estimate, where it lay in committee for several months and was finally withdrawn, to be introduced into the State Legislature in the closing hours of the 1933 special session. Here the bill was rushed through committee, passed, and signed by the Governor. In November of that year a reform administration was elected, headed by F. H. LaGuardia as Mayor. One of his first acts was to

appoint Dr. Forbes as Commissioner of the reorganized Department of Purchase and to administer the system which was largely the result of his own studies and recommendations. The rest of the story is fairly familiar to Purchasing Agents—a difficult but determined struggle against the forces of entrenched privilege, a cumulative record of outstanding accomplishment and economy, and a well earned reputation for unswerving integrity—all culminating in the tribute already quoted from the foreword to this study.

Part II of Mr. Zeitlin's monograph is devoted to an analysis and summary of the specific purchasing powers embodied in the present organization, its relation to other divisions of the city government, and the manner in which purchasing is actually done.

1 1 1

OFFICE EQUIPMENT DISPLAYED AT THE BUSINESS SHOW

The 37th annual National Business Show was held in New York City, February 3-8, offering a comprehensive display of latest developments in filing and record systems, duplicating equipment, calculating machines, dictating machines and accessories, typewriters, air conditioning, lighting equipment, mailing machines, office furniture and supplies. Besides the natural emphasis on improved efficiency, speed and styling of these working tools of the office, the special problems of the times were reflected in the presentation of a stock control system by the Postindex Co., inventory records by the International Business Machines Corp., and a complete purchasing system by the Standard Register Co.

1 1 1

MILWAUKEE PURCHASING REPORT

The 1940 report of J. W. Nicholson, City Purchasing Agent and Secretary of the Central Board of Purchases, Milwaukee, Wis., shows expenditures amounting to approximately \$3,700,000 for the year. The work of the department is described in some detail, following the general outline of previous reports, but noting also some of the unusual developments of the year. For the first time, the Purchasing Agent handled the purchase of books for the Public Library, a responsibility heretofore delegated to the Library Board. By taking competitive bids and removing the restriction which had formerly considered only suppliers within Milwaukee County, this business was placed in Chicago at a saving of \$1,331.57. Another special responsibility was the disposal of scrap materials from the Kilbourn Widening Project. Total sales of surplus, obsolete and scrap material for the year amounted to \$31,570. Cash discounts of \$22,000 were earned by prompt payment of accounts.

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The Gasoline Division, operating two
bulk stations, handled 920,000 gallons of
gasoline and 57,000 gallons of kerosene
at savings ranging from 1 to 4 cents per
gallon, and 15,800 gallons of motor oil
at savings up to 30 cents per gallon. A
request has been made for more ade-
quate underground storage facilities at
several points of distribution throughout
the city, to reduce the large number of
small deliveries now required.

Another activity instituted this year
has been the organization of the Co-
ordinated Purchasing Board of Milwau-
kee County. At the invitation of the
City Purchasing Department, officials of
other governmental units are now meet-
ing to work out a plan for joint pur-
chases. Seventeen cities and villages,
eight school districts, and the Milwaukee
County government are at present in-
cluded in the project. Regular meetings
are held twice a month, at which copies
of contracts and specifications and sam-
ples of products, are presented for con-
sideration. The Board has established
a standardization committee and has
tentatively undertaken to obtain bids on
the total requirements of all the bodies
represented, with the provision that each
governmental unit shall issue its own
contracts or purchase orders. Other co-
operative services will include the stand-
ardization of commodities, and a system
for inspecting deliveries.

Purchasing Agent Nicholson is also
serving as an advisor to the Consumers'
Division of the National Defense Com-
mission.

1 1 1

WORLD OUTPUT OF TIN

The International Tin Research and
Development Council reports that world
production of tin during January
amounted to 17,500 long tons, an in-
crease of 2,400 tons or 15.9% as com-
pared with the corresponding figures for
1940.

World stocks of tin, including smelt-
ers' stocks and carry-over, declined 1,176
tons, or approximately 2%, during Janu-
ary, to a level of 59,806 tons on hand.

Tin deliveries to the United States in
January totalled 12,760 tons, as com-
pared with deliveries of 9,700 tons in
January, 1940, and average monthly de-
liveries over the past year of 9,873 tons.
Deliveries to this country for the twelve
months ending January 31 were 118,477
tons. For the preceding twelve month
period the total was 77,346 tons, an av-
erage of 6,445 tons per month. Prices
have advanced about 10% over the past
year.

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NEW APPLICATIONS FOUND FOR PLASTICS

The demand for substitute materials to replace nickel, chrome, aluminum, magnesium, and alloys of these metals, now urgently needed for primary defense work, has resulted in a steadily increasing interest in the possibilities of plastics for many new applications. With priorities already established on aluminum and magnesium, this development has received new impetus, and many successful applications have already been reported.

More places for the chemical products, instead of metals, are being found by automobile manufacturers, who were among the first to turn to this field. For example, two manufacturers are now replacing the chrome trim in body interiors with extruded lengths of plastic material, a comparatively new development in the field of fabrication. Plastics being used in this application include the cellulose acetate butyrate materials manufactured by Hercules Powder Co. and the Tennessee Eastman Corp.

Household goods and appliances are probably the leading classification in the program of substitution, particularly in the replacement of metals formerly used in valve handles, escutcheon plates, bathroom fixtures, refrigerators, vacuum cleaners, and other utensils formerly made from chromium, aluminum, and magnesium. A molding powder developed by the Celluloid Corp. is said to have properties superior to the metals it is replacing in refrigerators—for drawer handles, shelf studs, freezer section handles, latches and corner pieces. Among its advantages are the inherent color of the material, as compared to the rust and paint chipping troubles formerly encountered.

This Lumarith plastic has high dimensional stability due to its low moisture absorption, and has high impact strength at low temperatures. In molding parts from the material, the part emerges already polished, thus eliminating the need for plating materials, processing and labor. It is also being used successfully in the manufacture of vacuum cleaner parts.

Another important application is in the field of containers and wrapping materials. Foil manufactured from an ethyl cellulose plastic last year offered successful competition to cellulose wrappings, and is now expected to find a greatly expanded field of use as a replacement for aluminum and tin foils. It is a product of the Hercules Powder Co. and the Dow Chemical Co. It can also be used for rigid containers.

Dupont officials have announced that production capacity for Lucite transparent sheeting will soon be doubled. Research workers of this company have been working for the past year in cooperation with the government, on a variety of plastic items and developments connected with the defense program. That cooperation will not only be maintained during the present year, but will be increased as the necessity requires.

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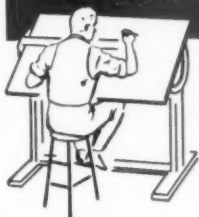
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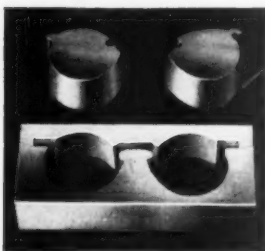
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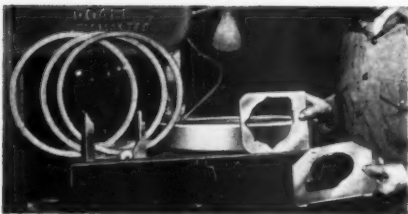
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Used in making sun glasses. Note that "clearance" is provided when sawed with a DoAll precision band saw blade. Die is smaller at top than bottom — eliminating need for filing.



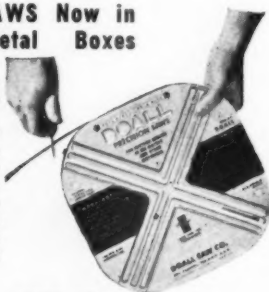
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At Brown Mfg. Co., New York City, the rings at left were made on the DoAll Contour Machine with DoAll band saws in less than 2 hours each, 1 blade being used for 2 pieces. Material is very hard special alloy 2 3/4" thick, 17" o.d., 14" i.d. Formerly it took 14 hours and 5 saw blades to split one forging.

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FACTORY STOCKS AT PEAK

Manufacturers' inventories rose during January to a new high peak, according to the National Industrial Conference Board, attaining a position nearly 28% higher than when inventory accumulations began with the outbreak of the war in the fall of 1939. The index is calculated as 129.8% of the 1935-1939 average. Shipments by manufacturers also rose during the month, to a rate 33% above that of January, 1940.

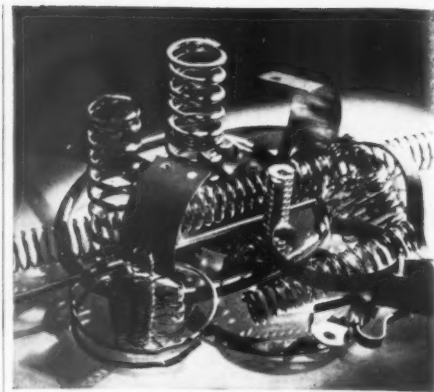
Among the durable goods industries, inventories advanced among producers of electrical equipment, machinery and machine tools, metal products, house furnishings, and office equipment. Declines were registered in the building industry, iron and steel, non-ferrous metals, railroad equipment, and glass industry. All figures are on a seasonally adjusted basis.

A greater percentage rise was noted among the non-durable goods industries included in the index, the boot and shoe industry being the only major group to show a decline. It should be noted, however, that the Conference Board index does not include product groups which are primarily related to the agricultural or extractive industries, such as food products, tobacco, liquors, and petroleum products. The advance which is recorded, therefore, reflects principally the conditions in clothing and textile industries, etc.

New orders received by manufacturers advanced only slightly during the month, on the seasonally adjusted basis, but even this slight increase resulted in a new record high level, at 221% of the 1935-1939 average. The December index was 219. January orders were 84% higher than a year ago, and were substantially in excess of production, so that backlogs of unfilled orders, which were already heavy, continued to rise.

However, this advance in new orders was not as generally distributed among all industries as were the increases in inventories and shipments. An analysis of the new business shows the greatest increase in orders for machinery, non-ferrous metals, textiles, house furnishings, and railroad equipment. This was partially offset by declines in the index for the shoe, building equipment, office equipment, paper, electrical equipment, and metal industries.

The policy of inventory accumulation, which is a natural development with the generally higher requirements entailed by increased levels of production, has been accelerated by other factors—notably, a growing concern over priorities in many lines, and the anticipation of further substantial expansion in armament production following the passage of the lease-lend bill by Congress. Both of these factors would divert materials from the normal flow of business and make for added difficulties or delays in procurement. It is probable, therefore, that the trend which is already strongly in evidence will continue over the next several months, to an extent limited only by the suppliers' capacity to produce.



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RAW SILK PRICE ADVANCES

The price of raw silk is currently well established at a considerable margin above the minimum price set by the Japanese government, and is steadily moving upward. At the end of February, May deliveries were quoted at \$2.69 per pound, whereas the New York equivalent of the Japanese minimum price is \$2.51 per pound. It is natural that recent tension in the Far East has contributed something to this situation, but it is principally due to statistical developments which reflect the success of the governmental price program.

During the first two months of 1941, warehouse stocks in this country declined from 72,248 bales to 54,106 bales, while mill takings were on a reasonably even level and in accord with expectations. Meanwhile, imports have fallen off for three consecutive months. In February they amounted to only 18,784 bales, or about two-thirds of the current rate of use. It is important to note, also, that stocks in transit from Japan had also declined and are reported as only 16,100 bales. This would indicate that there is no immediate reversal in prospect, and that imports will continue to decline.

The Japanese governmental program for controlling silk prices has developed in two distinct stages. The first stage consisted of governmental purchases of excess silk, building up governmental stocks, but removing the pressure of topheavy supplies from the international market. By this process, a stock of 118,630 bales was accumulated. This has been effectively held off the market, however, by setting a minimum price of \$3.13 per pound (American equivalent) for release of these supplies. There is no indication that this price level will be reached for some time to come. Meanwhile the minimum price of \$2.51 per pound established for non-government stocks assured producers of a reasonable return.

While this policy was being put into effect, the emphasis was turned toward curtailing production and so to avoid a recurrence of large surplus stocks hanging over the market. This has apparently been successful, for government stocks were not increased during February, and arrivals from the interior have been declining. The report for February shows only 18,000 bales, which is closely in line with present shipments.

Short of serious trouble with Japan, which might result in a complete stoppage of shipments to this country, no actual shortage of raw silk is anticipated, and the extent to which the price advance may continue is a matter of divergent opinion in the trade. The reluctance of hosiery manufacturers to bid for larger inventories is explained in some quarters by the fact that this industry must be classified as a non-essential luxury industry under the defense program, and in the event of an actual shortage, their supplies on hand would be subject to diversion for military use. Without that shortage, there is little incentive to tie up a large investment in stocks.

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Because General Box containers are easier to handle and can be packed faster, employee earnings are increased.

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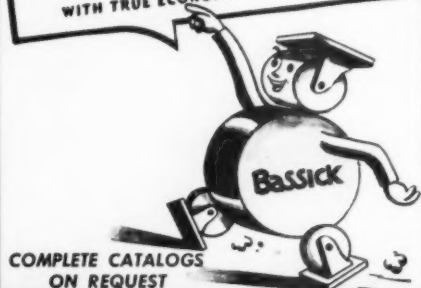
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OBITUARY

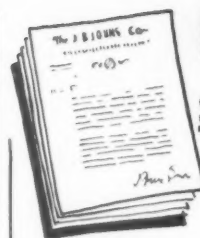
Rear Admiral Christian J. Peoples, 64, died of pneumonia at the Naval Hospital, Washington, D. C., on February 3rd. Admiral Peoples had retired from active duty on November 1, 1940, after forty years of service, chiefly in purchasing and supply activities. He won his commission as ensign in 1900 by competitive examination, while attending the University of California, and attained the rank of Rear Admiral in 1917. His first assignment was with the Supply Corps at the Puget Sound Naval Station. He was attached to the Bureau of Supplies and Accounts, U. S. Navy, in 1904-1911 and again in 1914-1921. After seven years as General Inspector, Supply Corps, West Coast, and three years in charge of the Fleet Supply Base at Brooklyn, N. Y., he was appointed Paymaster General and Chief of the Bureau of Supplies and Accounts in 1933. In November of that year he was ordered to additional duty as Director of Procurement, Treasury Department, a position which occupied his entire attention from 1935 to 1939. In this capacity, he completely revised and extended a catalog of standard specifications, and was officially credited with accomplishing "incalculable savings" in purchasing for the work relief program. He also directed the survey of fifty billion dollars in projects for this program. In 1939 he again became General Inspector, Supply Corps, for the Pacific Coast, with headquarters in San Francisco, until reaching the statutory retirement age last year. He was decorated with the Navy Cross for exceptionally meritorious service as Navy Representative on the Exports Control Committee during the World War, and was awarded the rank of Commander in the French Legion of Honor for services rendered to the French Purchasing Mission.

Frank E. Knobbs, 68, for many years Purchasing Agent for the Buick Motor Co. at Flint, Mich., died January 18th in Washington, D. C., while enroute to his winter home in Portsmouth, Va. Mr. Knobbs retired from active business in 1929, and had spent recent years in world travel.

Raymond Mosely, 54, Buyer in the Seattle (Wash.) City Purchasing Department, died February 5th of a heart attack. He had been in poor health for some months.

Frank L. Liese, 65, for many years Purchasing Agent of the Bank of America, Brooklyn, N. Y., up to his retirement from active business nine years ago, died of a heart attack at his home in North Bellmore, Long Island, February 9th.

Anson D. Knapp, an active member of the Pittsburgh Purchasing Agents Association for more than twenty-two years, died last month at his home in that city.



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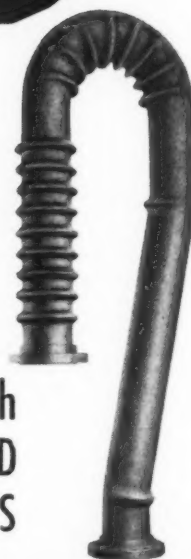
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C. O. Jelliff Mfg. Corp.
Southport, Connecticut

Food for Defense

(Continued from page 63)

will be too large for the ordinary wholesaler to handle economically. For instance, to give each man in one camp a banana for breakfast, five carloads of bananas are required—and this particular camp may be many miles from the nearest banana market. This is inevitable; it is in the interest of national defense. But where a man can and does perform a needed function, the simplification of the act of purchasing will make it easier for him to handle his share of the business.

There have been some reports to the effect that in the last war the Government bought all of its food through wholesalers, and that naturally it ought to do the same thing in the present emergency. Without casting any reflections on the legitimate function of the wholesaler in distribution, these stories simply are not true. The record shows that the Government in the last war bought staple items which it needed in large quantities directly from the manufacturer, and that in some instances it even commandeered a certain proportion of each producer's output for direct distribution to the Army. As a matter of fact, over a number of years various important items which the services required in volume have been purchased under the plan I have described—flour, canned meats, coffee, etc. It is therefore a logical development of the regular procurement plan that as the needs for other items reach a similar volume, the method of purchasing must be revised.

An important point to bear in mind is this: that while the Army will buy vast quantities of food throughout the emergency period, there is no indication that there will be any substantial lessening of normal civilian demand. For while the Army will be buying for a great many young men whose food heretofore has been sold in regular commercial markets, present trends indicate that this shift away from home consumption will be largely counterbalanced by an increase in civilian consumption. This increase will be caused by defense spending and the increase in prosperity and general purchasing power which will accompany it. Thus food distributors should not experience any noticeable lessening in consumer demand.

Competent Buying Counsel

This program, of course, was not worked out in a vacuum. It is the product of a meeting of many minds—the best minds we were able to enlist, from the military services, the Government, and private business.

The real job is being done by Col. Paul Logan, Chief of Subsistence of the Quartermaster Corps, U. S. Army. Col. Logan is probably the Quartermaster Corps' top expert on food procurement. He attended the Corps subsistence school at its Chicago depot, serving later as an

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instructor there, studied in the Army Industrial College in Washington, remained as an instructor there, and while in that position worked with the Quartermaster General's office on the Army's war plans for subsistence. He is the man who, under the direction of the Quartermaster General, is actually developing the present plan. And it is the Army that actually lets the contracts and does the buying all the way through.

The Division of Purchases, of the Office of Production Management, gives Col. Logan such advice and assistance as it can, under the direction of Mr. Donald Nelson. To help us, in turn, we have secured the best men to be found with actual purchasing experience—the underlying idea being to make available to the Army the very finest skills which private business has developed in the whole field of purchasing foodstuffs.

Last fall the Division of Purchases set up a Food Procurement Advisory Committee. It consists of:

Hector Lazo, Co-operative Food Distributors of America, Chairman.

John A. Logan, National Association of Food Chains, Secretary.

Oliver Stout, Co-operative Food Distributors of America.

R. H. Rowe and A. G. McCune of U. S. Wholesale Grocers Association.

Tyre Taylor and Robert Wilson of National Association of Retail Grocers.

M. L. Toulme and William B. Mackey of National American Wholesale Grocers.

Ralph C. Samsel, official representative of the fresh fruit and vegetable industry.

These men know the food distributor's problems. It was through meetings with them, in conjunction with the Purchasing Division and the Quartermaster Corps, that the basic procurement policies for the Army were worked out. That is to say, it was agreed that the whole procurement program would be based on continuance of competitive bidding and the open market, that preventing the disruption of normal commercial markets and civilian food supplies must be paramount, and that centralized procurement would be necessary to prevent competition between Government buyers.

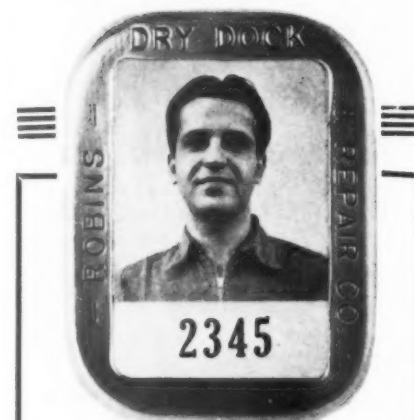
In cooperation with representatives of the various food trades, we are setting up special subcommittees to the Food Procurement Advisory Committee. Among those which have already been formed are committees for bread, poultry, eggs, butter and cheese, fresh fruits and vegetables, and for canning. Representatives of the Agriculture, Consumers and Price Stabilization Divisions of the Defense Commission attend all meetings and ad-

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vise how proposed plans are affected by the functions of their divisions. Through the Advisory Committee, we plan to issue, as the necessity arises, a series of information releases to the trade press on Army procurement requirements, and summary reports of successful bids and prices on foods.

It is important to bear in mind always that this involved program is but a part of a far greater whole. We are making our country into a vast arsenal for Democracy, and I have described simply the commissary arrangements we have made to supply our own soldiers who are to stand guard while this arsenal swings into operation.

1 1 1

TRAINED WORKERS ARE NEEDED

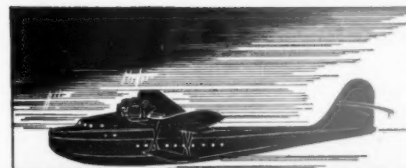
The Twentieth Century Fund, which estimated last fall that reserves of labor were adequate to carry out production under the defense program, has revised that opinion in a recent study which takes into consideration the request for additional defense appropriations and the virtual abandonment of fiscal limitations upon armament production. The conclusion now is that there will be a demand for labor that "will certainly exceed the number of unemployed persons in the labor market."

The figures for this estimate are that approximately four million idle workers are now available for employment, while 1940 appropriations will call for about six million workers between now and the fall of 1942. Barring an early peace, the increase will be larger than this, and with the enlarged program of defense the rising trend of employment will continue beyond 1942, which was previously considered as the probable peak year.

The research staff has noted that while severe shortages already exist in certain lines and in certain sections of the country, especially in the skilled trades, there are large surpluses of workers in other lines and other sections. That unevenness may continue to some extent, so that there may be between one and two million unemployed persons even at the peak of production.

Increased requirements for labor will be met in part by workers who have not previously been in the labor market. More than a million will be added to the working force by the normal excess of new workers over retirements in the next two years. The experience of the World War may be repeated, when several million women workers temporarily entered industry. Agriculture presents a considerable reservoir of potential workers, and two million persons could probably be drawn into industry from this source without reducing agricultural production. All of these factors, of course, do not take into consideration the possibility of "vertical" expansion of the labor force by extending the hours of work.

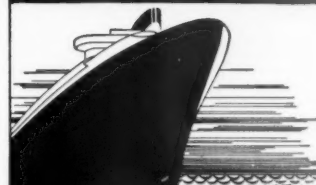
Meanwhile the United States Office of Education reports excellent progress in its worker training program. The original objective was to train 700,000



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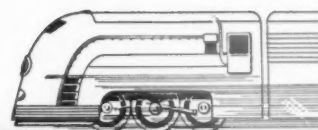
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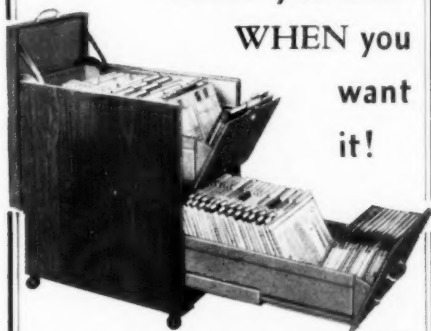
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skilled mechanics by the end of June, 1941. Present indications are that the cooperating vocational schools will provide a million mechanics by this summer. A number of industries are also conducting intensive training programs on their own account, such as General Motors, where 60,000 workers are presently in training in preparation for defense requirements.

RUBBER QUOTA IS REAFFIRMED

The International Rubber Regulation Committee, at its February meeting, reaffirmed the rubber export quota for the second quarter of 1941 at 100% of basic quotas. Permissible exports under this arrangement amount to approximately 135,000 tons per month, plus an estimated 3,000 tons monthly from countries outside of the agreement. World consumption of crude rubber, including the recent sharp rise in United States use, is estimated at about 90,000 tons. There is consequently a liberal margin of supply for American rubber reserve purchases, a factor which is understood to have influenced the decision of the Committee. It is not likely that production will be speeded up further, in view of labor difficulties at the plantations. The problem is one of transportation, not of production. Currently, sufficient cargo space is reported available, but international tension in the Far East, the fear of U-boat blockade, and the pos-

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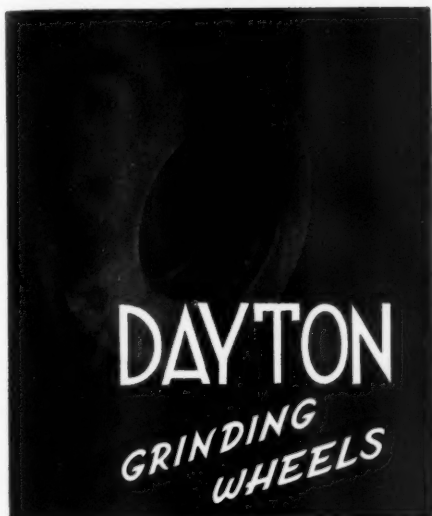
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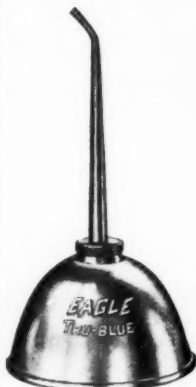
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Order Now!

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sibility of war in the Pacific, combine to make this an uncertain element in the situation. Up to February, shipments had not yet advanced to the permissible export quota.

1 1 1

CORRECTION

An item in the January issue (page 116) referred to the new address of the "General Felt Co." purchasing offices. The company name was in error, and should have been reported as the "American Felt Co.", now located at Glenville, Conn.

1 1 1

BACK ISSUE WANTED

The Library of Congress, Washington, D. C., needs a copy of the August, 1936, issue of *PURCHASING* to complete its file of this publication. The issue is out of print and no longer available from this office. Other back issues requested in a notice published in our January issue have all been provided, but this one gap remains to be filled. Any reader who may still have a copy, which he is willing to contribute to the file at Washington, is asked to communicate with Mr. H. S. Parsons, Chief of the Periodical Division, Library of Congress, Washington, D. C. Such cooperation will be greatly appreciated.

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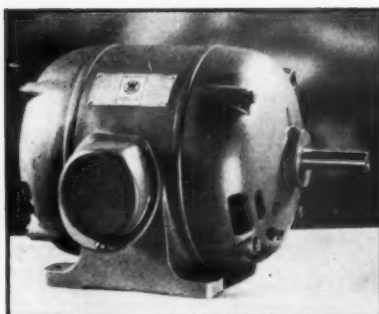
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They must have given satisfaction or they would not have been in demand for 87 years.

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New PRODUCTS IDEAS

BALL BEARING INDUCTION MOTORS



■ **Smaller** a.c. squirrel cage ball-bearing induction motors especially designed for general purpose industrial, machinery drive applications have been placed on the market by the Westinghouse Electric & Manufacturing Company. These motors are available in ratings from 1/2

to 5 horsepower, with speeds from 875 to 3600 rpm., for operation on 110, 220, 440, and 550 volts, 2 and 3 phase a.c.

Greatest of the many improvements incorporated in the motors is the "permanently sealed" ball-bearing which requires lubrication only once every three years. Double row bearing width gives 50% greater shaft contact area with consequent longer bearing life, and reduced shaft wear.

Specially developed plastic wire coating gives maximum dielectric strength, toughness, and flexibility. Reinforced cuffs at slot edges protect windings from abrasion, and coil ends are taped to brace them against the strains of full voltage starting.

SURFACE GRINDER

■ **A precision** surface grinder to fill a long wanted need for a grinder which will handle the finest precision work required in production has been developed by The Doall Company, Minneapolis, Minn.

Two and a half years have been spent in developing this machine tool. The design has been carefully worked out to give maximum rigidity and minimum vibration. The base of the machine weighs 815 lbs. and is scientifically ribbed and reinforced, giving a full box construction. The column which carries the spindle has a 30" bearing surface in the base which holds it rigidly in any position. The column of the machine is made of alloyed cast iron containing both chromium and nickel.



TEMPERATURE INDICATOR

■ **For those who need** a portable instrument for thermocouple temperature measurements, for checking thermocouples, or for measuring small emf's, additional precision can now be obtained without increase in instrument cost, by sacrificing the convenience of a reference-junction compensator.

Increased accuracy has been provided in this indicator by calibrating only a small portion of the range on a continuously adjustable slidewire. The remainder, adjustable in fixed steps, is on a dial switch of ten highly accurate resistors. Range is from 0 to 111 millivolts with a limit of error of ± 0.1 millivolt.

Completely self-contained, this potentiometer is light and compact. No additional accessories are required except the thermocouple and an ice bath for the reference-junction.

Product of Leeds & Northrup Company, Philadelphia, Pa.



CIRCULAR SAWS

■ **Notable** among the records of long, continuous performance by industrial saws, are the strides being made by the new segmental tooth type of large circular saws for either wood or metal cutting.

The essential reason for the development of these inserted tooth segments, is the economy and quickness of repair in case of tooth breakage, or wear. Therefore, the most important development of this saw is found in the saws of exceptional diameter engaged in the most exacting types of metal cutting.

Combining this segmental feature with the speed and operating efficiency of their "curled-chip" tooth design, E. C. Atkins and Company of Indianapolis, Ind., report proof that inserted tooth cold saws are now capable of the hardest kind of service in the latest types of heavy duty circular sawing machines.

Construction provides segments of 4 teeth each riveted to the saw disc with 4 carbon rivets, and with rim align-

Famous Meter-Miser gives New Frigidaire Water Coolers Amazing Economy!

**COOLING COST AS MUCH AS 50% LESS
THAN OLD STYLE METHODS!**

★ With a cooling capacity of 10 gallons per hour*, this new Frigidaire cooler is a star performer for most every industrial need! It costs far less to operate than old-style methods, because its new mechanism is the famous Meter-Miser—result of Frigidaire's vast refrigeration experience. This is the same type mechanism proven efficient in over 2½ million Frigidaires. And it's protected for 5 years against service expense!

Look at all these features! In addition, this new Frigidaire water cooler has stainless steel top... bonderized sides... pre-cooler for speedier cooling... optional foot pedal at slight extra cost... "Magic Action" bubbler... self-cleansing tank... finger-tip temperature control... attractive appearance... and many other important features.

Ask for catalog! There is a complete line of Frigidaire coolers for every need. Ask for catalog today, or let Frigidaire make a free survey of your requirements. Phone nearest dealer or mail coupon below!

CAUTION! It isn't a genuine Frigidaire unless it bears the Frigidaire nameplate! Frigidaire makes: Water Coolers, Air Conditioners, Beverage Coolers, Refrigerating Equipment for all purposes.

*Water cooled from 80° to 50° in an 80° room, with 50% of water passing through pre-cooler.



Meet the Meter-Miser

Simplest Refrigerating Mechanism Ever Built!

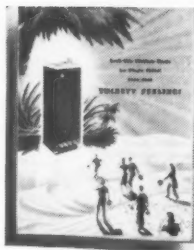
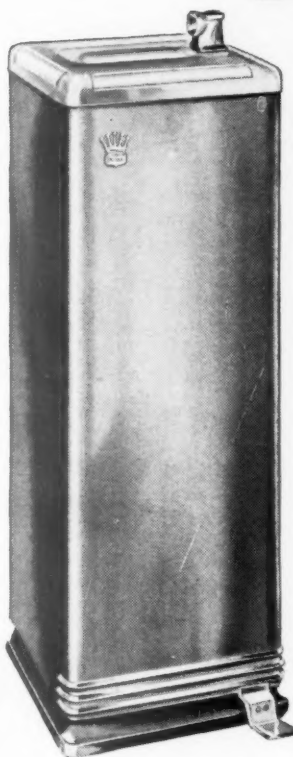
Quiet, efficient, dependable, the Meter-Miser is protected for 5 years against service expense. Of exclusive rotary design, it has no pistons, connecting rods, belts, pulleys to cause friction or wear. Permanently sealed and oiled for life. There's no other like it!



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CapScrews, SetScrews,
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a new high standard
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Cold-forged . . . Neater, Stronger

Only a handful of "doubtful" screws may lower the quality of a full day's output of a product. Besides, consider how screws which fail to function properly can slow up production and bring up costs.

That's why Parker-Kalon's Guarantee against "doubtful" screws—screws that look all right but of which a percentage fail to make satisfactory fastenings—is vitally important to you. This Guarantee is your assurance that the Parker-

Kalon Screws you use have met the rigid tests imposed by the Parker-Kalon Quality-Control Laboratory. From raw material through the various processes of manufacture, inspections and tests guard against "doubtful" screws.

Specify Parker-Kalon and get Fastening Devices you can depend on to live up to the performance promises made for them. Parker-Kalon Corporation, 202-204 Varick St., New York, N. Y.

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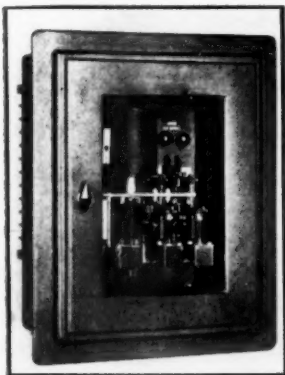
**PARKER-KALON
Fastening Devices**

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ment rivets at the joining edges of each segment. These rivets are all heat treated to same degree as section of blade in which they are located, a process which insures "even-wearing" qualities with segment joints always smooth and free from any high or low spots.

The teeth of all segments are of highest quality high speed steel, backed with tough, heat-treated chrome-nickel steel. These saws are offered in diameters from 11" to 10 feet and all segments are precision made for replacement.

VOLTAGE REGULATOR



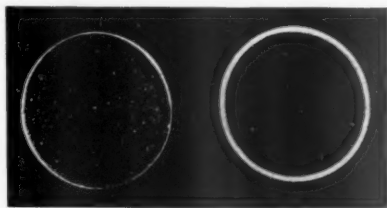
■ An indirect-acting rheostat generator-voltage regulator, designed especially for the automatic voltage control of medium and large size a.c. generators in central stations, or large municipal and industrial generating plants, and for synchronous motors and condensers, has been announced by the Westinghouse Electric & Manufacturing Company. The regulator is especially adapted for use on systems where quick-response excitation is used to improve stability under fault, or large

load conditions.

Greatest distinctive operational feature is its high-speed action time of 3 cycles after a voltage change. This and its ability to quickly force the exciter field to its limit makes it suitable for quick-response systems. The regulator element responds to average 3 phase voltage, hence will not operate falsely on an unbalanced system fault.

SAFETY LENS

■ Made of special non-shattering material, these safety goggle lenses are the result of long-continued research and experimental work in the laboratories of the Univis Lens Company, Dayton, Ohio. They are not to be confused with old type plastic or laminated safety lenses, since they are produced under a special process from a newly developed material.



In an actual flash welding service test, the Safety lens (shown at right) was unaffected by flying particles of hot metal and sparks after 84 hours of service. The ordinary tempered glass lens (at left) was so "pitted" after 16 hours, that it was unfit for further use.

The fact that each lens is less than half the weight of a tempered glass lens, of equal dimensions and thickness, represents an important consideration, because workers are inclined to remove goggles that are uncomfortably heavy. And, by so doing, they expose their eyes to flying fragments, spattering molten metal and other eye hazards.

WATER FILTER

■ Many engineers will be interested to learn that the well-known "radial fin construction," successfully used by Staynew Filter Corp. of Rochester, N. Y., in more than half a million filters for air transmission lines and internal combustion engines, has now been adapted in a new model to the filtration of water. The filter has already proven its value, under actual working conditions, to paper mills,

WANTED: TIGHT FASTENINGS
... NO 'DOUBTFUL' SCREWS
NEED APPLY! ...



So BLACK & DECKER gives the job to Parker-Kalon Self-tapping Screws!

TAKE a tip on fastenings from this well-known manufacturer of portable electric tools.

Don't risk using "doubtful" screws ... screws that break at the head, strip, start crooked or fail to draw up tight. Such screws always waste time, tempers, and run up costs.

When you use Parker-Kalon Screws, you avoid such troubles. For these Screws are made to rigid standards maintained by the famous \$250,000 Parker-Kalon Quality-Control Laboratory...standards developed from over 25 years' experience in the manufacture of Self-tapping Screws. This is your guarantee that every Parker-Kalon Screw will go in easily and hold securely. Parker-Kalon Corporation, 202-204 Varick St., New York, N. Y.



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**TYPES, SIZES, HEAD-STYLES
FOR EVERY ASSEMBLY OF
METAL OR PLASTICS**



TYPE Z

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HARDENED
Self-tapping Screws

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READY TO GO - Quicker



**When They're
STANLEY
Steel
Strapped!**

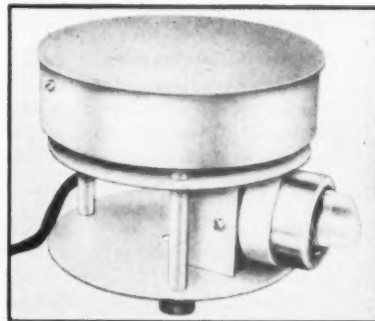
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users of hydraulic systems and humidifying apparatus, chemical plants, shirt factories, rolling mills, and to many other less well classified users.

Construction is simple and filtering action positive—all water passing through special fabric filter mediums possessing the advantages of high efficiency plus minimum restriction to water flow—advantages which are increased by the Radial Fin Construction.

HOT PLATE



■ A hot plate for heavy duty laboratory work — heat treatments, evaporations, dehydrations and digestions, embodying advantageous features, is being marketed by Edwin L. Wiegand Company, Pittsburgh, Pa. Capacities from 660 to 2000 watts inclusive.

Baffles provide protection for 3-heat switch mounted on base, eliminating contact failures and assures, cool operation of understructure and switch, resulting in easy portability and safe operation on wood surfaces.

RADIAL UNIT HEATER

■ This new development in unit heater design provides a wide and uniform distribution of heated air in factories, etc.

One radial unit heater can now be used in place of two or more of the standard single direction heaters resulting in reduced installation costs. In replacing several single units it effects definite savings in piping, wiring, fittings and labor costs.



Made in one style for suspension only and is encased in a sturdy semi-circular steel casing finished in brown baked-on wrinkled enamel. Manufactured by McQuay, Inc., Minneapolis, Minn.

HOIST SPEEDS HEAT-TREATING PROCESS

■ An interesting application of material handling via hoist may be seen in a heat-treating system operated by a Chicago bicycle manufacturer.

This firm uses a large quantity of small metal parts in the manufacture of bicycles, and the parts must be carefully annealed to insure the proper temper of the metal. To expedite the treatment of these parts, the company evolved a heat-treating system considered one of the most efficient of its kind.

The setup consists of two annealing furnaces, each served by a quencher, and a degreaser into which the parts are placed after treatment. The system is served by a ½-ton hoist, made by Harnischfeger Corporation, Milwaukee, Wis., mounted on an I-beam spanning parallel

When writing The Stanley Works please mention Purchasing

girders. The hoist and I-beam move along the parallel girders to serve either furnace; and the hoist itself also moves back and forth on the I-beam.

The company reports that this hoist and furnace system has greatly increased the speed with which they get their small parts treated, and they plan to enlarge the system in the future.

SAFETY LAMP GUARD

■ In the use of a portable "trouble light" in industrial plants, there are many occasions where water, moisture, dust and chemicals present very serious problems. They present hazards that cannot be eliminated due to the particular type of manufacturing, which makes it necessary to have these dangerous conditions present at all times.

A portable lamp guard made by The Safeguard Electric Co., Brooklyn, N. Y., has a rubber handle, to which there is attached, by means of a rubber locking ring, a "rugged metal" cage. A "water-sealed" socket is placed within the handle, and a rubber shoulder projects from the top edge of the rubber handle. This holds the socket securely and firmly, so that it cannot slide, or come out of the handle at any time.

When the lamp guard is assembled you can place the entire guard, with lamp burning, so that it is completely immersed in water. This demonstration is convincing evidence that the lamp guard will not become short-circuited, and the operator will not be subject to a shock or a burn.



KEEP EMPLOYEES' HANDS CLEAN AND HEALTHY
FOR ONLY 1/2¢ PER WORKER PER WEEK!

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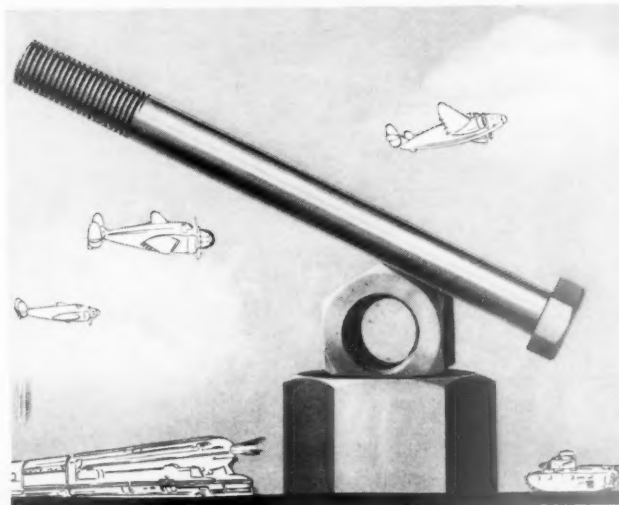
Mione

**POWDERED
HAND SOAP**

When dermatitis and other skin infections attack workers' hands, efficiency drops — production lags. Yet it costs so little to prevent industrial diseases. MIONE removes dirt like magic—without injury to the most sensitive hands. That's because it consists of TWO mild abrasives—one for the finer ridges of the skin, the other for the deep-seated, stubborn layers of grease, grime and dirt. Let MIONE police your workers' hands and keep them in condition to do a full-time, efficient job. And remember how little it costs—but 1/2¢ per worker per week.

Write for details of a special introductory offer and information about Mione's new quick-acting sanitary dispenser.

MIONE MANUFACTURING COMPANY
COLLINGDALE, PA.



GUARDIANS OF INDUSTRY

Throttle the supply of bolts, nuts, machine screws, and other threaded industrial fastenings, and our defense program would halt. There is no plane, no tank, no gun, no ship, no machine tool, no box car that does not contain scores of such important products. For the "lowly" bolt and nut and its modifications provide industry with its only standardized fastening that may be accurately adjusted and that permits disassembly and reassembly at will.

RB&W is continuing plant expansion and product improvement, as well as adding to service facilities, in order that the pace of progress in the bolt and nut industry may be not only maintained, but substantially accelerated.

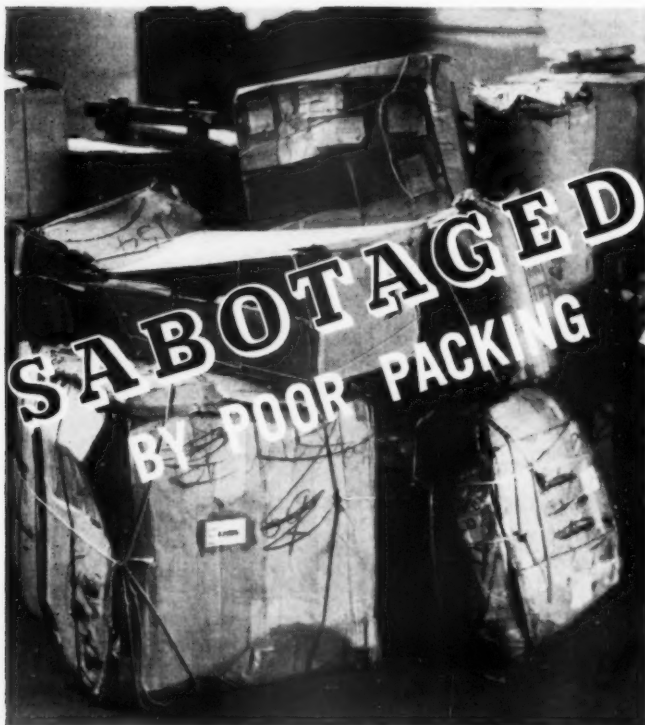
Since 1845, through years of war and years of peace, through booms and depressions, RB&W has provided industry with stable facilities for EMPIRE Bolts, Nuts, Rivets, and other Threaded Industrial Fastenings. In the future, as well as in the past, RB&W quality and RB&W service will be maintained.



RUSSELL, BURDSALL & WARD
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PORT CHESTER, N. Y. ROCK FALLS, ILL. CORAOPOLIS, PA.





FAULTY TAPE CAN DO THIS TO YOUR PACKAGES —DON'T LET IT HAPPEN!

Too many packages, even today, end up in similar junk heaps simply because some gummed tape buyers think all tapes are alike—and single out the cheapest for their shipping room needs.

Packages like these are costly—damaging reputations as well as merchandise! Such losses can be averted by using Blue Star Planet Sealing Tape. It's quick-sticking, sure-gripping, and delivers the goods SAFELY! Let its performance prove the superiority of the tape you buy. Try a free sample coil of Blue Star Planet Tape. If your paper merchant cannot supply you, write us.



McLAURIN-JONES CO.
BROOKFIELD, MASS.

Offices in Los Angeles, Chicago, New York

COMBINATION RANGE SWITCHES



■ A redesigned combination range switch has been announced by the Square D Company, Detroit, Michigan. It has 60 ampere two-pole main and range circuits, and four one-pole plug fusible circuits. Devices with parallel main and range switches are available.

Solderless connectors are furnished throughout. The strong, light weight bakelite base may be reversed if it is desired to have the plug fuse circuits

at the top. The interior may be removed by loosening one screw. There are 60-ampere tap-offs after the main fuses for water heater circuits or mains extension.

The bakelite fuse-breaks in these devices have test holes so that fuses may be tested without removing the fuse puller. The main and range fuse-breaks are entirely non-interchangeable, and have the words "main" and "range" molded in the bakelite so that the identification cannot be destroyed.

SKID BOX WITH STACKING RUNNERS

■ The C. B. Lewis Co., Watertown, Wis., offers a new design for an industrial container. The main feature of this design is the construction of the skid and stacking runner arrangement. The built-up skids extend slightly beyond the box area providing greater stacking surface. Each skid has a specially designed stacking runner attached to it. If the box is quite large, a one-piece cleat is attached to the bottom at the center of the box providing additional

CHICAGO MOUNTED WHEELS OF V/T SUPER BOND



150% LONGER LIFE

V/T Super Bond is the most important development in mounted wheels in 30 years. Does work faster and better. Won't ridge on welds, sharp corners, sinking dies, bar-barring, etc.

TRIAL WHEEL—Tell us kind of job, type of equipment you use and size wheel and we'll send you one to try out.

FREE CHART—A Wall Chart 22 x 15" shows actual size and shape of every standard Chicago Mounted Wheel. Ask for one.

HI-POWER GRINDER—For jobs beyond the capacity of the Handee, nothing compares with the HI-POWER in vibrationless performance, precision and stamina. 17,000 r.p.m. with ample power to drive a 2½" diam. wheel. Wt. 3 lbs. In wood case with accessories, \$35.00.

HANDEE TOOL OF 1001 USES—A small "power house" that can be used wherever there is an electric outlet. Grinds, drills, polishes, cuts, routs, carves, sands, saws, sharpens, engraves, cleans, etc. Uses 300 accessories. Weighs 12 oz. 25,000 r.p.m. \$18.50 postpaid with 7 Accessories.

Send for catalog of complete line.

CHICAGO WHEEL & MFG. CO.

Makers of Quality Products for 40 years.

118 S. Aberdeen St.

Chicago, Ill.



10 DAYS
FREE
TRIAL

stacking surface besides reinforcing the bottom. This unique construction offers plenty of room for the lifting fork of a power lift truck so that a box or several boxes—loaded or unloaded—may be easily picked up.

As each box is piled upon the stack the stacking runner slides easily and snugly into the top of the box below—a safety feature that prevents dislodging of the boxes and also gives unusual stability to the stack.

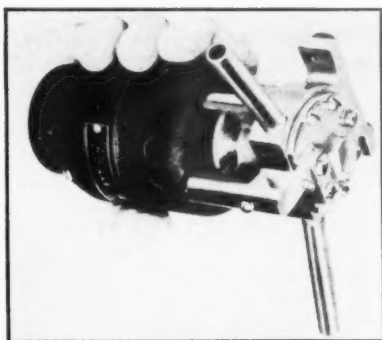
The combination of a power lift truck and a sturdily constructed stacking box fits into the trend of modern industrial methods. More and more manufacturers who have small parts to handle between various processes or a finished product to store before packing and shipping are switching to this method of handling.

MIDGET PRESSURE PUMP

■ The Eastern Engineering Company of New Haven, Conn., has announced the addition of a new model to its rapidly growing line of midget size pumps.

This pump is ideal for any application in which the location of tanks and containers make the self-priming feature essential. Its light weight and small size make it particularly adaptable to all installations requiring the pumping of thin liquids where weight and space involved must be kept at a minimum.

Motor armature and pump impeller are mounted on a single shaft, making coupling unnecessary and assuring perfect alignment.



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Send for Catalog "G" and full details on our National User's Discount Plan.

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WHITE PAPER LINE

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Standard
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Office managers specify LYFLAT Note Books because they help to increase their stenographers' efficiency. Stenographers prefer them because they help to speed up taking dictation. The strong, stiff covers fold back flat on the wire binding, permitting the book to LIE FLAT when in use. The wire binding also permits the sheets to turn freely. Available in both wide and narrow rulings—10 styles on white paper and 6 styles on green tinted paper. Two sizes: 4 3/4" x 9" and 6" x 9".



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**SOLD BY LEADING
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Do the Big 1941 Job with Less Man-killing Effort



Cut Your Pipe Easier and Faster with the Work-Saver **RIGID**

The Defense cry is for *more* Speed! You can get it and still protect your men — with **RIGID** Pipe Tools, long famous as time and labor savers — like this remarkable cutter.

That thin forged blade wheel rolls easily through pipe, with the least effort. Cuts clean, practically no burr. More cuts per wheel, less changing, lower cost. Powerful well-balanced frames, easy twirling to size. Standard and heavy-duty models; also 4-wheel cutter with special handle.

Cut more pipe but cut work and expense. . . Buy **RIGIDS** at your Supply House, today!

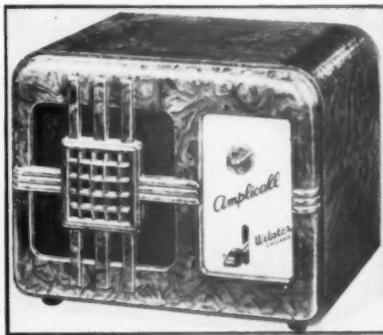
THE RIDGE TOOL CO., ELYRIA, OHIO



RIGID Heavy-Duty Pipe Cutter



OFFICE COMMUNICATION SYSTEM



■ A two-station system for use in business offices where quick, instant intercommunication is highly essential, has been developed by Webster-Chicago Corp., Chicago, Ill.

Although low in cost, this system has all the features of the more elaborate systems such as lat-

est tubes, balanced line, freedom from hum, and new compact speaker-microphone. Units are assembled in attractive walnut finished bakelite cases, small and compact requiring but a minimum of desk space.

It comprises one master station and one remote station. When the master calls the remote station the latter can answer back without operating any controls. Master station is equipped with a volume control on the front panel.

ELECTRIC STEEL CASTINGS

■ A complete service for the production of electric steel castings, including designing, pattern making, annealing and rough finishing, is offered by the Key Company of East St. Louis, Illinois. This plant is also equipped with a modern machine shop for complete finishing of either special or production runs of castings, should the buyer's requirements demand full finishing operations.



We don't know what the "artist" who did the above drawing * had in mind — perhaps a bit of landscaping, or an airport — but he ended up in some words that do mean something—Micro-Weave All American Tracing Cloth. By every basis of test and comparison, this tracing cloth "measures up". If you haven't tried Micro-Weave — order it from your supply house — in the convenient container box.

* another in the series of "Doodle" drawings found on the margins of test sheets returned to us by draughtsmen.

THE HOLLISTON MILLS, Inc., Norwood, Mass.

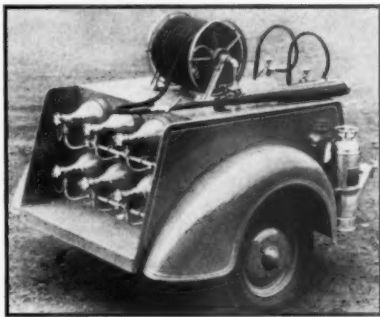
Companion Product: Holliston Photo Cloth

BOSTON • NEW YORK • CHICAGO
PHILADELPHIA • ST. LOUIS
RICHMOND



FIRE FIGHTING UNIT

■ A compact and versatile fire fighting weapon has recently been perfected by Walter Kidde & Company, Inc., Bloomfield, N. J. It is designed to be hooked up as a trailer for emergency use.



This mobile unit carries a heavy armament against fire. The big artillery is a battery of six 50-pound carbon dioxide cylinders equipped with a hose reel and nozzle. The cylinders are manifolded together and are individually operated by valves on each cylinder. This permits employment of all or any part of the unit's capacity on a large or a small fire.

Carbon dioxide gas is discharged onto the fire through 100 feet of 1/2-inch hose, fed through a trunnion type manifold.

For smaller fires, two portable carbon dioxide extinguishers of 15 pounds capacity are carried on the front platform of the trailer.

It is expected that the new trailer will be employed by industrial plant fire brigades for use as "first aid" fire extinguishing equipment.

Primarily, this trailer unit is designed for use on large fires in flammable liquids and electrical equipment. Carbon dioxide is especially effective against these two types of fire. In addition to being one of the fastest known extinguishing agents it is safe to use on live electrical equipment, since it is a non-conductor. Moreover it is clean, dry, leaving no residue, doing no damage.

THIS FAN CONTROL is built for SUMMER HEAT



The well planned arrangement of Ward Leonard Speed Regulators provides circulation of air around resistance elements to dissipate the generated heat.

They will therefore operate continuously at any speed setting, in the hottest weather, without overheating. Ward

Leonard Motor Speed Regulators include everything from small ring type rheostats for window ventilators to the heaviest industrial blower controls. Multi-Speed Motor Starters available for air conditioning.

BULLETIN 1101

describes Ward Leonard Speed Regulators, ventilated and enclosed types, 1/20 to 1/3 H.P.

BULLETIN 4061

describes Multi-Speed Starters.

BULLETIN 1105

describes Ward Leonard Vitrohm Ring Type Rheostats 1 1/2", 2 1/4", 3" and 4" diameters for 25, 50, 100 and 150 watts.

EXTRA HEAVY DUTY

special information upon request.

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ELECTRIC CONTROL DEVICES SINCE 1892



Profits take care of themselves if you deliver the goods. Keep production humming with TRIPLEX Threaded Fasteners

"Plenty of business" doesn't always mean "plenty of profits"—especially when production difficulties run up your costs. TRIPLEX Cap and Set Screws, Bolts and Nuts help you reduce assembly line delays—give you strong, clean threaded fasteners that add materially to economy of operation.

TRIPLEX Cap Screws, for instance: All standard sizes, all heads and threads. Tough upset blanks made from strictly specified steel—threaded, pointed and finished on modern machines that assure accurate dimensions. Heat treating carefully controlled in latest type electric furnaces.

Threaded fasteners do vary in quality. Don't take chances these busy days. Investigate TRIPLEX—write today for samples and prices.

THE TRIPLEX SCREW COMPANY
5319 Grant Ave. Cleveland, Ohio

TRIPLEX
CAP AND SET SCREWS, BOLTS, NUTS AND RIVETS
★ Millions Sold . . . Used in Every Industry ★



PAGE *makes it Easy* FOR YOU TO GET THE SHAPED WIRE THAT WORKS UP BEST

● When you ask us about wire for a specific use, the first thing we do is to look at the job with *your* eyes—learn exactly what you want to do with wire.

Since wire always has been our business, that makes it almost as easy for us to recommend the wire that will work up best for you as if we reached into a box for it.

You can't get that wire into your shop as quickly as that. It has to be manufactured—and done right. But there, too, PAGE service is geared to help you as much as we possibly can—in low carbon or high carbon steel, in any of many Stainless Steels, in half-rounds, ovals, diamonds, octagons, hexagons, squares, triangles, etc., end sections up to $\frac{1}{4}$ " in area and widths up to $\frac{3}{8}$ ".

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AMERICAN CHAIN & CABLE COMPANY, Inc.

COMMUNICATING SYSTEM



■ **Permitting direct**, private, two-way communication between all stations up to 12 on the system, this model 1200 intercommunicating system includes master-selector type stations. In systems using less than 12 stations, additional stations can be added at any time without disturbing original installation.

Any two stations can converse with each other or several may join in private conversation. In a 12-station system, up to six independent, private conversations may be conducted simultaneously without interference with each other. Either two-way loud speaking or earphone reception is provided. Special switching arrangement enables private round table conference between any number of executives without touching the instrument or using the optional earphone.

When listening through earphone, conversation is conducted without touching the talk key. Push button selection instantly contacts any desired station. Automatic busy signal is provided and each station can control its incoming loud speaker volume.

Each station is attached to 110-120 volt, a.c. or d.c. source. Single multi-wire cable connects unit to junction box and boxes are connected by single cable. Made by Executone, Inc., New York City.



30th Anniversary

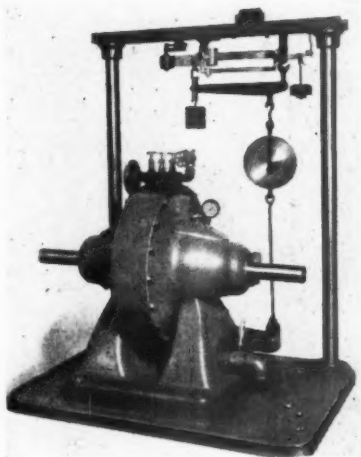
Modern production engineers and purchasing agents have discovered that Atlas Equipment can be used for machining countless small parts that formerly tied up larger expensive machines.

ATLAS PRESS COMPANY
340 N. PITCHER ST. KALAMAZOO, MICH.
LATHES • DRILL PRESSES • ARBOR PRESSES
SHAPERS • MILLING MACHINES

HYDRAULIC DYNAMOMETERS

■ Many outstanding features in their line of hydraulic dynamometers are announced by The Taylor Manufacturing Corp., Milwaukee, Wisconsin. They are available in all sizes, capable of absorption capacities to as high as 10,000 hp. and 25,000 r.p.m., for prime mover brake horse power, torque, efficiency, load, fuel, life and accessory testing.

The precision-balanced rotors are rigidly held in position on the large, alloy steel shaft. The internal vanes on both the stator and rotor are so spaced that they assure a constant, dependable, unvarying load-absorbing medium within a comparatively small machine.

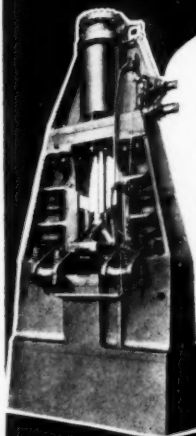


AIRPLANE JACK

■ Reflecting the speeding up of airplane construction, The Duff-Norton Manufacturing Company, Pittsburgh, Pa., has developed a number of special lifting jacks for "streamlining" airplane maintenance.

These airplane jacks, the first ever developed especially for this purpose, have many features that contribute to efficient operation of airplane maintenance shops. They are easily moved from place to place, and can quickly be spotted. They are sturdily built for continuous heavy duty, are safe, positive acting, reliable and most economical.

POUNDS SAVED are PENNIES earned



The horseless buggy and the V-8 are worlds apart—so are drop forging production methods and equipment of that era and this. We have kept pace with the times and our modern equipment and practices effect definite savings for drop forgings users.

Kropp drop or die forgings have a properly upset grain structure and are forged to closer tolerance, thus minimizing the amount of machining necessary and reducing the weight of forgings prior to machining. These pounds we save benefit our customers, lower their costs and increase their earnings.

You, too, can profit by Kropp's up-to-the-minute methods of producing drop forgings.

KROPP

KROPP FORGE COMPANY

World's Largest Job Forging Shop

5315 W. Roosevelt Road
CHICAGO, ILLINOIS



Clover Products

MUST MEASURE UP to This Mark of Clover Quality



Why do Clover Coated Abrasives lead in cutting power, give longer sanding life and provide lower production costs? Because, throughout the process of manufacture, every element—backing, abrasive grain and glue—as well as the finished product, is under the alert scrutiny of Clover chemists and engineers.

Nothing is left to chance. Every precaution is so exercised that each Clover ingredient and each finished Clover product measure up to the Clover standard of quality.

**COATED ABRASIVES AT THE RIGHT PRICES
FOR YOUR EVERY SANDING NEED**

If your distributor cannot supply you, write us direct. Also ask us for informative Abrasive Manual, and for free working sample offer. Address DEPT. K

CLOVER MFG. CO., NORWALK, CONNECTICUT

**ASK, ALSO, ABOUT CLOVER GRINDING AND LAPPING COMPOUND
—FAMOUS FOR 38 YEARS**

In the 38 years Clover Compound has been the first choice of expert machinists for precision lapping, over 40 million cans have been used,—each can demonstrating these long-famous Clover qualities • Perfectly graded, super-sharp, diamond-hard Silicon Carbide grain • Eight grades from microscopic fine to very coarse • Special heat-resisting petroleum hard oil binder • Withstands friction temperatures • Maintains uniform consistency and grain suspension • Fast-cutting • Cool-cutting • Does not burn work.



CLOVER

Coated Abrasives

Easily Identified by Color-Stripping
and the Famous Clover Trade Mark

QUALITY ABRASIVES SINCE 1903

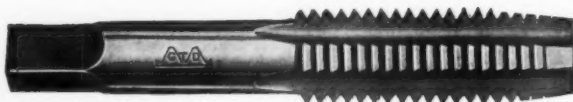
When writing advertisers please mention Purchasing



PRODUCTION: *Up 50%*

A certain New Jersey manufacturer reports this very good saving in tapping costs. This screw machine is turning out a part made of 3½% nickel steel. Tapping a ¾-24 hole was the "bottleneck" of the job until they switched to "G. T. D. Greenfield" Taps. The solution recommended was a roughing cut with a "Gun" Tap and the last .010 of an inch removed by a ¾-24 High Speed Steel Ground Thread "G. T. D. Greenfield" Tap. Production on the whole job jumped 50%.

To manufacturers everywhere who must use every possible means of increasing production, we say—"Have you thoroughly investigated 'G. T. D. Greenfield' Taps? —Ground Thread High Speed Steel for fast, accurate work; 'Gun' Taps for 'through holes'; 'Maxi' (the special surface treatment) for stringy or abrasive materials." "G. T. D. Greenfield" Engineers will arrange a test at your convenience.



GREENFIELD TAP & DIE CORPORATION GREENFIELD MASSACHUSETTS

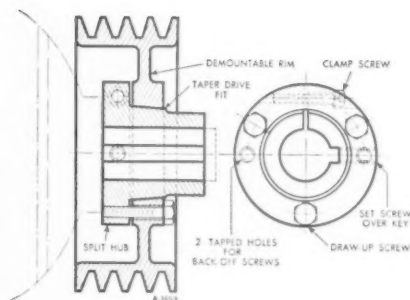
Detroit Plant: 2102 West Fort St.

Warehouses in New York, Chicago, Los Angeles and San Francisco
In Canada: Greenfield Tap & Die Corp. of Canada, Ltd., Galt, Ont.



Taps • Dies • Gages • Twist Drills • Reamers • Screw Plates • Pipe Tools

V-BELT DRIVER SHEAVE



■ A quick-detachable V-belt driver sheave has been announced by Worthington Pump and Machinery Corporation, Harrison, N. J.

Extreme simplicity of construction is claimed, and suitability for any ap-

plication where quick mounting of sheave to shaft, and dismounting from shaft, are desirable; for example, on those classes of equipment where speed ratios must be changed to meet varying conditions. Applications cited are fans, blowers, printing presses, machine tools, and special equipment in the petroleum, paper and textile industries. Also, in general maintenance, it eliminates the necessity of a wheel puller to remove wheel or hub from shaft to get at the driving unit.

ALUMINUM OXIDE POLISHING GRAIN

■ **Vanite**—a fused aluminum oxide produced in the electric furnace—is the trade name given to a new polishing grain by the Hanson-Van Winkle-Munning Co., Matawan, N. J. It is a product of bauxite from which the impurities such as titanium oxide, iron oxide, silica, etc., have been removed.

Rigid control is maintained, by manufacturing to close specifications and careful inspection, of the grain shape and size. The grains are of the "blocky" type, as nearly equi-dimensional as possible, and practically free from

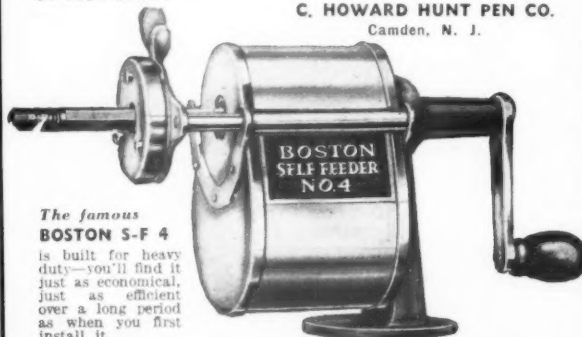
AMERICA demands the Best! BOSTON SELF FEEDER NO. 4 IS THE ANSWER!



You know how America hates something "almost the best." America just won't buy "almosts." That's why Bostons are specified in orders given for pencil sharpeners for plant efficiency.

Your job depends on elimination of waste in materials and money. Boston S-F 4 will give you sharp value all along the line. Boston S-F 4 always cuts long, firm, uniform points; feeds the pencil itself; stops cutting when a perfect point is made; lasts longer due to three extra cutting edges on each cutter.

C. HOWARD HUNT PEN CO.
Camden, N. J.



The famous BOSTON S-F 4

is built for heavy duty—you'll find it just as economical, just as efficient over a long period as when you first install it.

BOSTON PENCIL SHARPENERS

weak particles like flats and slivers which have inferior abrasive value. Grain size is closely controlled by screening and separation into "oversize," "nominal" and "undersize." The "nominal" is the control product; "oversize," coarser, and "undersize," finer. Each keg is subjected to a careful screen analysis to determine the percentages of these three sizes and is kept within the specifications adopted for each grit size, in accordance with the U. S. Department of Commerce, Bulletin R 118-30 entitled, "Abrasive Grain Sizes."

Capillarity or "degree of Wetting" is one of the important properties of abrasive grains used with adhesives like glue, and Vanite is noted for its high capillarity. In order to maintain capillarity, the kegs of grain should always be covered when not in use and stored in a dry place. Grain should not be allowed to remain in the bottom of the trough for more than two or three days. Frequent cleaning of the trough will prevent contamination of the new grain by the old.

EXTRA LIGHT DRILLS

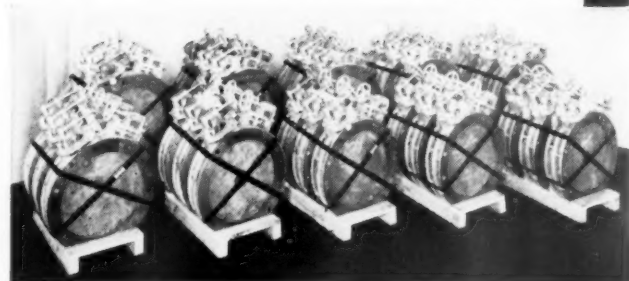


■ Two additions to its "Multi-Vane" Drill line have been announced by Ingersoll-Rand Company, Phillipsburg, N. J. These tools are extremely light in weight, ranging

from 1½ to 2¾ pounds. Numerous attachments can be furnished to adapt these tools for light screw driving, nut running, close-quarter drilling, wire brushing, sanding, etc. Three different types of handles (straight, lever throttle, or pistol-grip) are available.

SIGNODE SYSTEM OF STEEL STRAPPING

CUTS COST 50¢ on New Product



• A manufacturer* producing butterfly valves for the first time, worked out a packing method that was safe, and seemed economical. Then Signode was called in:—

As in thousands of cases in over 300 industries Signode was able to offer an improved packing method at lower cost—in this case 50 cents per unit.

If you have a new product or would like a review of your present packing methods—whether cartons, cases or carloads—write to Signode naming the products you ship. *Name on request.

SIGNODE STEEL STRAPPING CO.
CHICAGO: 2602 N. Western Ave.
Brooklyn, N. Y.: 371 Furman St. San Francisco, Cal.: 454 Bryant St.
40 Offices Throughout United States and Canada

SIGNODE

Replace Gaskets Quickly and Easily

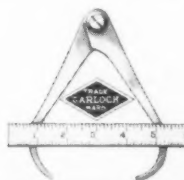


TO OPERATE FLANGE-JACKS:
Remove opposite flange bolts, insert jaws of Flange-Jacks in holes and tighten. After removing other bolts, tighten down jack-screws together, separating flanges evenly.

GASKETS on existing pipe lines can be quickly and easily renewed with Flange-Jacks—a specially designed tool recently introduced by Garlock.

No hammers . . . no chisels . . . no wedges . . . no broken flanges . . . no damaged faces . . . no pipe vibration . . . no dangerous sparks . . . no long shut-downs.

You just let Flange-Jacks do the work. Even if a joint is located where working space is cramped Flange-Jacks will open it easily. Write for descriptive folder!



THE GARLOCK PACKING CO.
PALMYRA, NEW YORK

In Canada: The Garlock Packing Company of Canada Ltd., Montreal, Que.

GARLOCK

MANUFACTURERS OF MECHANICAL
PACKINGS AND GASKETS SINCE 1887

Just off the Press!



BEARINGS

Write for your copy!

THIS NEW CATALOG contains so much usable data on the proper selection and maintenance of anti-friction bearings that we think every executive, engineer and maintenance man will value it, no matter what bearings he uses.

AHLBERG BEARING COMPANY
MANUFACTURERS OF **CJB** MASTER BALL BEARINGS
3039 WEST 47TH STREET, CHICAGO, ILLINOIS
Service from 25 Branch Offices

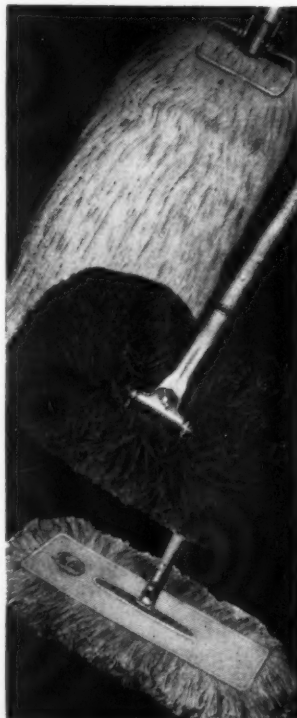
Fuller WET and DRY MOPS

FULLER WET MOPS are made in three types of cotton yarn, all of which have the qualities needed in a good mop—strength, absorbency and efficiency. Supplied in three styles—narrow tape, wide tape, solid head, and in all standard weights and lengths.

FULLER DRY MOPS are made of high grade cotton yarn. Two styles—a dyed cotton, held in a twisted-in-wire frame, and a launderable type with detachable head. Reversible handles (sold separately).

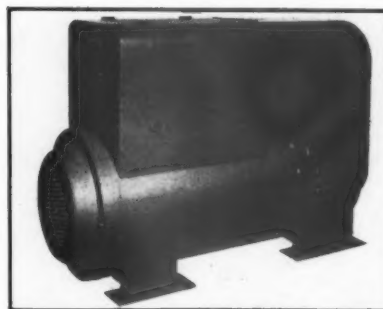
SEND FOR Industrial Cleaning Equipment Catalogue.

SPECIAL BRUSHES—cylindrical, flat, oval, all shapes and styles—can be supplied in **STEELGRIP**. Address Specifications and Blueprints to Department 8C.



The FULLER BRUSH Company
INDUSTRIAL DIVISION
3585 MAIN STREET HARTFORD, CONN.

LARGER VARI-SPEED UNITS



■ To meet the demand for its all-electric, a.c. adjustable-speed drive in sizes which would extend this simple method of control to larger applications, particularly in the printing, textile and machine tool fields, than were contemplated when the system was first made

available two years ago, Reliance Electric & Engineering Company, Cleveland, Ohio, has announced three additional vari-speed units of 20, 25, and 30 hp.

The same principle of speed control is used as in the other sizes which range from 1 hp. upward. Only changes which have been made are concerned with the outward appearance of the unit. For the sake of compactness it has been mounted horizontally instead of vertically as in the smaller sizes. Particular attention has been given to the design of the mounting brackets which contain special longitudinal rubber shock pads to insure quiet operation of the unit, wherever it may be installed in the shop. No special foundation or leveling is required.

ASBESTOS-CEMENT WALLBOARD

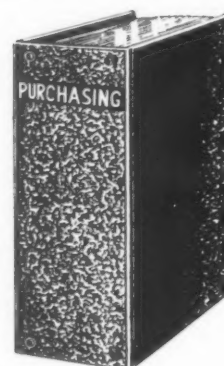
■ An asbestos-cement wallboard possessing valuable qualities that make it entirely different from other asbestos-cement wallboard, has been developed in the research laboratories of The Philip Carey Company, Lockland, Cincinnati, Ohio.

An outstanding characteristic of the new product is its workability which overcomes an objection common to this

CONVENIENT - STURDY - ATTRACTIVE

BINDERS

FOR YOUR COPIES OF
PURCHASING!



These binders hold up to twelve issues of **Purchasing**—copies easily inserted. Well made in attractive blue artificial leather with **PURCHASING** stamped in gold on back. Shipped postpaid. Price \$1.50. Order one each for your 1940 and 1941 issues today.

PURCHASING

205 E. 42nd ST., NEW YORK, N. Y.

type of board. Exhaustive tests are said to have demonstrated that it can be nailed, sawed, hammered and perforated without danger of cracking or splitting. Adding further to its working quality is its unusual flexibility, making it possible to curve it around four foot radii without breaking.

Made of asbestos fiber and Portland cement, this wall-board, in addition to its rot-proof quality, is highly fire resistant. It is said that the flame of a blow torch, played directly on this material will not ignite it. Used in walls and ceilings, it provides an effective safeguard against the spread of fire.

ELECTRIC HOIST



■ A one ton capacity hoist has been added to their line of light weight, portable, plug-in type electric hoists by The Chisholm-Moore Hoist Corporation, Tonawanda, N. Y. The addition of this new model now makes this versatile and popular hoist available in five capacities—250, 500, 750, 1000, and 2000 pounds.

It is rugged and compact in design and is suitable for all types of hoisting service. It is available with hook suspension for quick, easy portability—or with a trolley attached for overhead

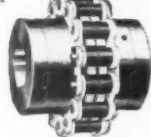
Keep Shafts Properly Aligned with **LINK-BELT**



Type "A" is made on the double slider principle for low speeds and heavy torque.



Type "B" is made specifically for moderate shock loads and noiseless operation.



Type "RC" has great flexibility of design for meeting special conditions. Easy to install, efficient in service.



Ribbed compression couplings are split, and can be easily installed or removed from shafts in place.

COUPLINGS

A Type for Every Service

• Making such a complete line of types and sizes, we are able to furnish you exactly what you need for any application. All have a generous margin of capacity over actual requirements. All have been proved in service. All will give you long life with minimum maintenance expense. Send for catalogs.

LINK-BELT COMPANY

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Flanged face couplings are made of cast iron and finished all over for proper balance. Many sizes.



Keyless compression couplings afford a simple means for the keyless connection of abutting shafts of standard diameter tolerances, on light-duty applications.

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Install these safety shoes on your present straight ladders—guarantee additional safety. This Dayton Universal Safety Shoe prevents slipping. Your choice of renewable treads including Rubber Suction Grip Treads, Neoprene Suction Grip Treads, or Suberac Cork Treads. Shoe is instantly converted by a flip of the hand or foot for either inside use of treads or outdoor use of tempered steel spike toe.

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Safety Ladder
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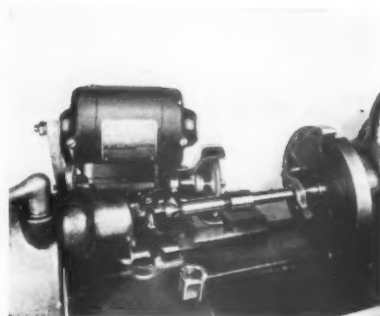
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conveyance. Special heavy-duty, high-torque motors are supplied for either 110 volt lighting circuits, or 220 or 440 volt power lines. Except for its larger capacity the one-ton "Comet," as the fast smaller sizes, saves time and energy on hoisting operations and offers the same advantages of low cost operation.

THREAD GRINDER ATTACHMENT



■ The thread grinder attachment for the #5 grinder manufactured by The Dumore Company, Racine, Wisconsin, saved time and money for a midwest tool shop in the production of this high-speed boring tool.

When the tool steel shaft was hardened and drawn, it was found that the distortion due to hardening made it impossible to screw on the boring piece which required a precision fit. However, the shaft thread was quickly and easily re-ground with the attachment, thus saving the 6 hours work required to machine a new tool, at a total saving of approximately \$15.00.

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■ A superior all-purpose paste, and a fine plastic modeling material, are added to the famous Prang brands that are available from The American Crayon Company, Sandusky, Ohio.

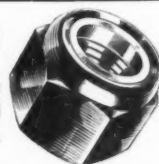
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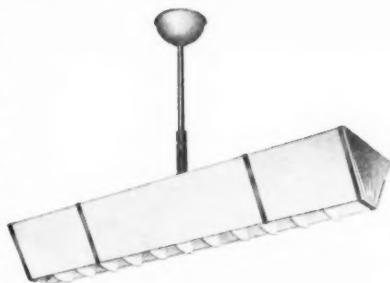


Catalog contains a graphic explanation of the Elastic Stop principle, presents test and application data, illustrates uses, and lists the complete line of nuts • Write for a copy.
ELASTIC STOP NUT CORPORATION
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Elastic Stop SELF-LOCKING NUTS

FLUORESCENT FIXTURE

■ **Four 40 watt** fluorescent lamps are shielded by means of diffusing glass in the Beacon, manufactured by The F. W. Wakefield Brass Company, Vermilion, Ohio. The bottom of the reflector is open. Direct view of the lamps is prevented by means of parallel louvers.



The lamps are mounted on a curved metal reflector in which is housed the necessary auxiliary equipment to operate the fluorescent lamps with minimum stroboscopic effect and with high power-factor correction.

All metal parts, including the ornamental hanger, are finished in satin nickel. The decorations in the end caps are illuminated through sheets of translucent plastic material. Although the lamps are enclosed, the design of the diffusing reflector has been carried out to facilitate relamping with the minimum of trouble.

HAND CLEANSER AND PROTECTIVE CREAMS

■ **Skilled industrial workers** are at such a premium that any lost time which can be avoided is of double importance and a real economic gain.

In this regard, the West Disinfecting Company of Long Island City, N. Y., have developed a number of products which help protect the workers from lost time accidents. Two products of such importance are: Lan-O-Kleen, a specially designed hand cleanser for industrial use and protective creams, a surface protection for the skin of workers



Often We DO THE JOB COMPLETE

WHILE we'll gladly make any number of single parts in any quantities, we'll also assemble them if you wish it.

Above is one of many such cases—a steel shank, milled and grooved; a threaded brass sleeve with hex flange; the two held in position by split washers. Principal parts made and the job delivered assembled. This assembling costs relatively little—often less than if done by the customer. Please bear this in mind the next time you're rushed.

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SCREW MACHINE PARTS
(SEPARATE OR ASSEMBLED)

LINK-BELT SPROCKETS FIT AND LAST

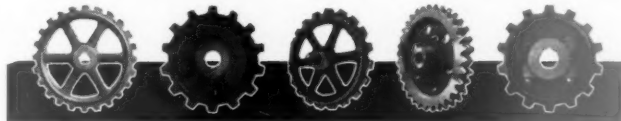
● Every Link-Belt sprocket is carefully fitted to the chain. This final step in the highly-developed Link-Belt process of sprocket manufacture eliminates the "break-in" period—a period of accelerated wear on the chain, as well—yet it costs you nothing extra.

Get them right from stock—cut or cast tooth—bored and key-seated to your order, ready to install. We can also give you quick and efficient service on cut and cast tooth gears.



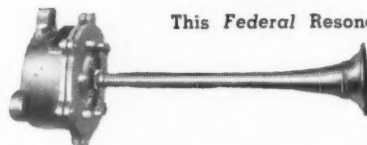
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This Federal Resonating Horn is ideal for fast code call systems.

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Especially now when every effort is being made to step up production, it will pay you to investigate Kewanee

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TRADE MARK

**Automatic-Adjustable
Stools and Chairs**

Unless you have tried seating factory and office workers on them you can't realize how efficiency and working speed is increased. Why not try the "Comfort Way" to increased production—by providing stools and chairs that not only give usual seat and back comfort—but also "Height that's always right" for every worker. Ever-Hold Stools and Chairs—

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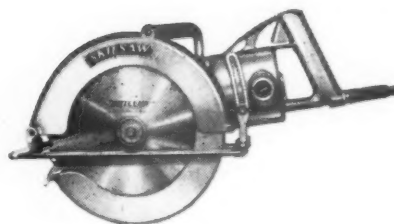
Simply lift seat to height that's right. Automatically locks in place. Anyone can do it quickly

Stool No. E1824
Adjustable from
18 to 24 inches

against many specific irritants which come in contact with the skin of employees in their normal jobs.

In order to give industry an opportunity to look into the merits of these two products, the above company will be glad to furnish one or more dispensers as well as a quantity of Lan-O-Kleen, free of charge, for trial purposes.

ELECTRIC HAND SAW



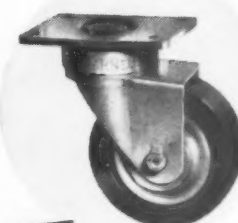
■ An improved model has just been added to the well-known line of portable electric saws manufactured by Skilsaw, Inc., Chicago, Ill., and it incorporates many new features which, it is claimed, make

it the most powerful and fastest cutting tool of its kind on the market.

This model has a 12 inch blade and cuts to a depth of 4 3/8 inches—it is ideal for mine construction work and all timber cutting on docks and dam super-structures, and it is used by railroads in bridge construction work and in cutting ties in maintenance-a-way work. It is very practical for cutting many types of building tile and for continuous cutting of copper sheets up to 3/8 inch thick, lead sheets up to 2 inches thick and many types of heavy gauge corrugated metals. It will rip and cross-cut timbers up to 4 inches full, and bevel-cut lumber 3 1/2 inches thick at 45°. The blade has a free speed of 2400 r.p.m. and is protected by an automatic spring-operated telescoping guard that rotates on ball bearings.

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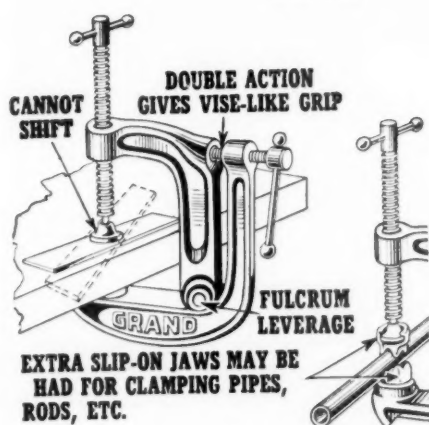
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95 CHESTNUT STREET, PROVIDENCE, R. I.
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CLAMP



■ A new idea in clamps has been developed by the Grand Specialties Co. It incorporates the standard clamp principle with an additional vise feature which provides a positive grip that eliminates all surface movement of the clamp or material under pressure. The clamp screw turns in a

hinged bracket, the hinge acting as a fulcrum with the base of the clamp which has a vise screw working against it. This brings the main clamp screw directly down on the work, eliminating a turning, creeping, or shifting of work.

It can be used in inconvenient places not accessible to ordinary clamps and develops a holding power that prevents creeping or shifting even on tapered or irregular surfaces. It is made in three sizes with openings 3", 4" and 6", and is constructed to operate as sturdily and dependably as a vise.

SPRAY BOOTH COATING

■ Thick, gummy accumulations of waste paint which are a common sight in paint spray booths, are quickly stripped from the walls of the booths in large sheets, provided the metal wall surface has been coated previously with the new spray booth coating made by The Harris Soap Company, Buffalo, N. Y. The coating is very thin yet tough enough to hold the waste paint tight against the metal

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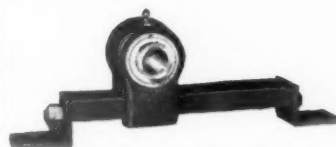
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Give you
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Style "N" Protected-Screw Take-up with Babbitted Bearing.



Style "NT" Protected-Screw Take-up with Self-Aligning Ball Bearing.

★ "N" and "NT" protected-screw take-ups are designed for all-purpose use (horizontal, inclined, vertical) and embody features heretofore available only in heavier, higher-priced types. Built with a steel channel frame, they combine maximum strength with minimum weight, to provide a dependable, low cost unit. Carried in stock for immediate delivery from the nearest plant, warehouse or distributor—in shaft sizes of $\frac{1}{2}$ " to $2\frac{1}{2}$ " and movements of 6" to 18".

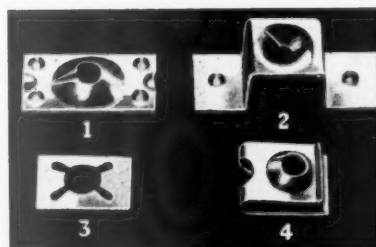


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A TYPE FOR EVERY SERVICE

CHOOSE *Prestole* FASTENING DEVICES
THE line OF LEAST RESISTANCE...



for TIME and MATERIAL SAVINGS Along Your Assembly Lines

★ Build with more speed and greater rigidity, at less cost by using Prestole Fastening Devices in your assemblies. Each Prestole Fastening Device made from cold-rolled steel (see items 1, 2, and 4), embodies the conically formed, and scientifically slit thread, which is attained by the Patented Prestole method of pre-tapping.

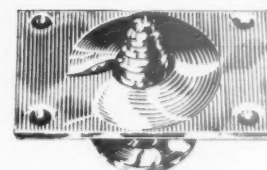
CUT COSTS

with Preformed Prestoles

Your preformed Prestole Fastening Devices, with pretapped holes, actually invite the entrance of the mating screw thread—make it unnecessary for the screw itself to deform the metal—allow for reasonable tolerances in hole alignment and create an assembly with a positive tension that stays tight even under abnormal vibration, without the use of a lock washer.

Prestole Sales Division

CENTRAL SCREW COMPANY 3515 SHIELDS AVE., CHICAGO, ILLINOIS



This Prestole is made of .050 cold-rolled steel, easy to jig and weld. A sturdy, efficient fastener. More than 40,000,000 used by the automotive industry in 1940. Rapidly finding new places along assembly lines.

QUICKIES—Item 3 above. Spring push-on nuts. Push over pins, any shape or material, for quick vibration-proof assemblies.

IMMEDIATE DELIVERIES. Many items in stock. Specials designed to fit your need. Write



"PULL-TAB" OPENER for ECONOMY

In every roll of SAFETEX gummed tape, regardless of width or basis weight, there is a "PULL-TAB" under the first layer of paper. By means of this PULL-TAB fresh rolls may be opened without wasting more than three inches of tape and with no loss of time whatever. Sold by distributors everywhere.

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Keep your conveyor belts going with

FLEXCO

HD BELT FASTENERS

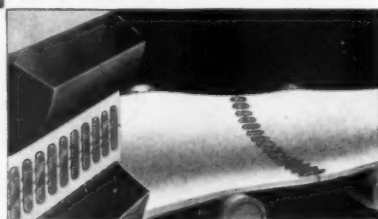


● **FLEXCO HD RIP PLATES** are used in repairing rips and patching conveyor belts. The wide space between outer bolts gives the fastener a long grip on the edges of the rip, while the center bolt prevents the fasteners from bulging.



● **FLEXCO HD BELT FASTENERS** make a strong, tight butt joint with long life. Recessed plates embed in belt, compress belt ends and prevent ply separation. Six sizes in steel and alloys.

FLEXIBLE STEEL LACING COMPANY
4697 Lexington St., Chicago



● Avoid shutdowns and lengthen the life of your conveyor belts and bucket elevator belts by using Flexco HD belt fasteners and rip plates. Thousands of companies have stepped up the performance of conveyor lines and cut costs by using Flexco methods.

Bulletin F-100 shows exactly how to make tight butt joints in conveyor belts with Flexco HD Belt Fasteners. Also illustrates step by step the latest practice in repairing rips and putting in patches.



Write for your copy

FLEXCO HD BELT FASTENERS
Sold by supply houses everywhere

walls until the operator is ready to remove the accumulation.

It is non-toxic, harmless to the skin, and non-inflammable and is quickly applied to the spray booth wall with any standard spray gun. This does away with the old method of protecting the walls from the paint spray accumulations by lining them with removable paper or cardboard.

The waste paint can be sheeted off without scraping; once the accumulation is lifted clear of the spray booth wall it will drop away from the metal from its own weight.

WHITEPRINT MACHINE

■ A medium priced whiteprint machine has been announced by Ozalid Products Division, General Aniline & Film Corporation, Johnson City, New York. This equipment constitutes a printer and dry-developing unit built into a single, compact machine in which are incorporated all the facilities necessary to turn out finished dry-developed whiteprints.

Equipped with a high pressure mercury vapor lamp, which uses 40 watts per inch and has an active length of 46", the machine will print



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BRIDGEPORT CONN.

NEW NESTING TYPE TOTE PANS



Lots of
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\$1.00 each

20" long x 12" wide x 6 1/4" deep
16 gauge steel, drag holes and handles both ends.
Other sizes and types available. Write for circular.

J. L. LUCAS & SON, INC.
5 Fox Street Bridgeport, Conn.

sensitized materials at speeds up to 56" per minute. The lamp gives uniform light distribution over the entire printing surface. It is guaranteed for 1,000 hours, but tests indicate a life of from 1500 to 2500 hours. Lamps which burn out can be reworked for considerably less than the purchase price of a new lamp. The efficiency of the light source cuts electrical consumption more than 50% of that required by other machines of similar capacity.

DUST-PROOF GRAVITY OILER



■ **A visible**, unbreakable, dust-proof oiler has just been announced by the Trico Fuse Mfg. Co., Milwaukee, Wis.

This oiler is intended for all applications of gravity feed type oilers where the dust-proof feature is desirable. No foreign matter to destroy the life and accuracy of bearings, especially on high speed precision machinery, can pass the 100 mesh brass screen and felt filter.

A unique feature is the removable filter that can be extracted for cleaning in less than five seconds without tools or waste of time. Unscrew dome and remove filter—that's all. If it is important that dust and dirt shall not reach the bearing, then it is likewise important that the filter be easily extracted for cleaning without disassembling the oiler to get at the filter. The dangers of neglect and clogging, which result in costly failures, are eliminated.

The oil is mounted at the top of the part to be lubricated and any predetermined number of drops of oil per minute can be obtained by a simple adjustment of the needle valve. The shut-off lever at the top, when in a vertical position, as shown, feeds oil, and when tilted to the side, stops the flow.

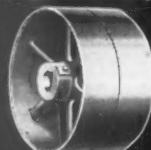
It is 50% lighter in weight and there are no gaskets to leak, as the unbreakable bottle is cemented and roll-clinched to the heavy brass base. All metal parts are bright cadmium plated for beauty and easy cleaning.

LINK-BELT PULLEYS

A Type for Every Service



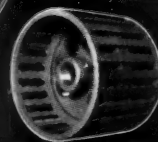
**Solid Cast Iron
Single Arm Pulley**



Cast Iron Tight and Loose Pulley



Steel Split Pulley



Cast Iron Slat Pulley



**Solid
Welded Steel
Conveyor Pulley**

● A complete line of Welded Steel Conveyor Pulleys, Cast Iron and Pressed Steel Pulleys of all types, solid or split, single or double arm or plate center, with internal or external flanges on rim, with jaw clutch hubs, with shear pin hubs, and with other special features—available for every conveying and power transmission service.

Data on the complete line will be found on pages 598 to 617 of General Catalog No. 800 and Power Transmission Equipment Book No. 1600.

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checked and certified by E. T. L.

HERE'S the answer to fluorescent for any office with high ceilings (ten feet or over)—or to higher levels of light—the new Wakefield **GENERAL**. For the General uses the new 60-inch (100-watt) fluorescent lamps and uses them at top efficiency. Mounted right on the ceiling* to give generous, pleasing light that speeds seeing and reduces fatigue. Fits in perfectly with standard acoustical tile. And it is a certified Fleur-O-Lier . . . checked and certified by Electrical Testing Laboratories for balanced performance and satisfactory service. Let the new Wakefield **GENERAL** take command; bring your office fluorescent at its best. Write us for details.

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PROTECT YOUR WORKERS!

Prevent

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- interrupted schedules

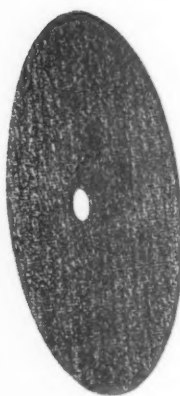


Skilled workers are valuable. Protect them against disabling accidents. As production goes into overtime, 2 shifts, 3 shifts — is your safety equipment adequate? No matter what you need, turn to Pulmosan for immediate service on any problem or product for safety.

PULMOSAN
SAFETY EQUIP. CORP.

Dept. P, 176 Johnson St., Brooklyn, N. Y.

INSULATED GRINDING DISC



■ The ability to stand up under high temperatures generated in grinding is claimed for the "Silver-Streak Insulated" grinding disc, made by Abrasive Products, Inc., South Braintree, Mass.

The unusual heat resistance of the product results from a new, exclusive binder. Unlike ordinary glue which quickly softens and destroys a disc as heat is generated, this binder stays firm and holds grits in cutting position at temperatures up to 1800° F.

This disc also possesses an advantage in its coating: laboratory tests have shown its special Aluminum Oxide grit capable of at least 25% more work than ordinary disc grits.

FIRE PROTECTION

■ Designed to operate when heat from fire reaches 160 degrees, "Life-Guard" fires two very loud reports, one a few seconds after the other. It is also designed to operate within a few seconds upon direct contact with flame.

No wiring of springs of any kind necessary to install—it is just hung in place with screws. Nothing to wear out; not necessary to recharge unless bombs are fired. All parts are made of brass with stainless steel firing pin spring. Manufactured by The General Fire Truck Corporation, Detroit, Michigan.



REPEATING PENCIL

■ Complete mechanical action is offered in the Ultimate repeating pencil made by Nahill Mfg. Co., Inc., Arlington, N. J. Without waste, fuss or muss, a single load of a dozen 2½" leads will move through your pencil with the precision of trained troops at a "turn-of-the-top" command. These 30 inches of lead will give you 8 to 16 months of smooth writing. The construction of the pencil controls the width of the line you write. Triangular leads alined with a grip-shape barrel always presents a corner to the paper. The tip construction prevents rotation of lead. It is light in weight and has perfect balance. Its exterior is hand-polished, comes in a range of colors with heavy chromium trim. It is guaranteed without time limit.

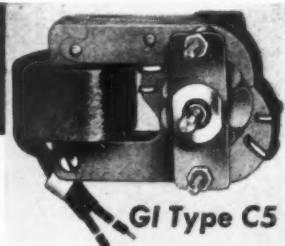
Get FHP Motors That STAND UP

BUILT to "take it" in miniature applications — whether stop-and-go or steady load—GI-C5 fractional h-p motors are long on service hours, maintained speed, overload capacity.

Up to 1/100 h-p. No-load speed, 3,430 r.p.m. Self-starting, shaded pole induction type. Fan-cooled. Oil-less bearings. Speed-torque characteristics tailored to your application.

Consult us about your requirements.

The GENERAL INDUSTRIES CO.
DEPT. 12
ELYRIA, OHIO



Designed for moving displays, small fans, heaters, toy film rewinders and similar small applications. Order one or two and make your own tests.

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IS STRONG ON PROTECTION

Extra Protection AGAINST PHYSICAL DAMAGE

A truly modern motor, you told us, must be able to withstand accidental blows, flying chips, dripping liquids, and occasional bumps in moving or mounting. That's how we built the Tri-Clad motor!

We made the frame and end shields of cast iron; used channel and rib sections to give ample strength where needed, without increasing the weight; cast the feet integrally with the frame to make them sturdy and rigid. We completely enclosed the upper portion and carefully baffled all ventilating openings to protect vital motor parts. We provided the bearings with cast-iron housings and made them dust tight. And the finishing touch—we give the motor a tough coat of paint that protects the metal parts against rust and corrosion.

The Tri-Clad motor is fully protected against the accidental ill-treatment some motors encounter all the time, and which *all* motors encounter some of the time. As a safeguard against production interruptions, as a prime factor in lowering costs, as an extra increment of value on machines you build, you'll find that this new motor means extra profit protection, too.

Be sure your next induction motors are Tri-Clad. General Electric, Schenectady, N. Y.

Extra Protection

AGAINST ELECTRICAL BREAKDOWN

New stator windings of Formex wire give extra protection internally against moisture, oil, abrasion, and heat aging. New synthetic impregnating and protecting varnishes make a rigid unit with a hard finish.

Extra Protection

AGAINST OPERATING WEAR AND TEAR

Sleeve bearings of new design have longer life and greater load capacity. The one-piece, cast-aluminum rotor winding, with fans cast integrally, is practically indestructible.

GENERAL ELECTRIC

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PERSONALITIES *in the* NEWS

Ernest W. Horst has been appointed Manager of Purchases and Materials for the Oil Well Supply Company, with headquarters at Dallas, Texas. He has been with the company since 1919, in purchasing, accounting and auditing work, and was assistant to the vice-president of the company's Midwest Division at the time of his recent appointment.

John D. Leeson, for the past eleven years Purchasing Agent of the Radiotron Division of RCA Mfg. Co. at Harrison, N. J., has been appointed Purchasing Agent of the company's Indianapolis Works. He succeeds T. J. Scanlon, who has been transferred to the General Purchasing Department at Camden, N. J., where he was located for five years before going to Indianapolis. H. D. Hanafus, formerly assistant to Mr. Leeson, has been named Purchasing Agent at the Harrison Works.

L. J. Ergas has been appointed Purchasing Agent for the Hotel New Yorker, New York City, succeeding Semy Ernest, who is now Purchasing Agent for the Hotel Commodore, New York.

Henry Meyer, Purchasing Agent for the General Bronze Corp., Long Island City, N. Y., and a past president of the New York Association, addressed the Columbia University Occupational Conference on March 11th, speaking of opportunities in purchasing work.

E. R. Naugle has been appointed Purchasing Agent of the Kerr Mill of the American Thread Co., at Fall River, Mass. He was formerly Assistant Purchasing Agent for the Lewis Mfg. Co. Gordon Merrill, formerly Purchasing Agent for Thompson's Spa, Boston, succeeds Mr. Naugle at the Lewis Co.

A. H. Russell, for the past twenty years Purchasing Agent for Bird & Son, East Walpole, Mass., has retired from active business, but will continue to serve as a member of the company's Board of Directors. H. S. Hanna succeeds Mr. Russell as head of the Purchasing and Traffic Department. Mr. Hanna has been with the Bird organization since 1920, chiefly in the Auditing Department.

H. M. Cosgrove, Executive Secretary of the Tulsa Association, was toastmaster at a reunion dinner of former residents of Bradford, Pa., the "Oil Capital" of the country in the early days of the industry, who are now living in and near Tulsa, the present "Oil Capital." The meeting was appropri-

ately held in the Bradford Hotel, Tulsa, and resulted in the formation of the Former Bradford Residents Club.

Fred A. Neumann, Purchasing Agent of the New Haven Clock Co., New Haven, Conn., has been named Vice-President and General Factory Superintendent of that company. Mr. Neumann has for several years served as Secretary of the Connecticut Association and as editor of the association *Bulletin*.

Eldon J. Lowe has resigned as Purchasing Agent of the O.C.S. Mfg. Co., Coffeyville, Kansas, a position he has held since 1934. He is succeeded by James O. Grigg, formerly Assistant Purchasing Agent for the company.

H. L. Stoner has resigned as Purchasing Agent of the John Igelstroem Co., Massillon, Ohio, on account of ill health.

George L. Kibler has resigned as Purchasing Agent of A. Bentley Sons Co., Toledo, Ohio, to accept a position as assistant to the President of the Betz-Pierce Steel Co., Cleveland.



A. E. BATESON

A. E. Bateson, who, until a year ago, was Manager of Purchases for the Allis-Chalmers Mfg. Company, has now retired from active service after completing 50 years of faithful association with the company.

Mr. Bateson was born in England and came to this country at the age of four. In 1891 he entered the employ of the purchasing department of Fraser and Chalmers of Chicago, which was consolidated with E. P. Allis Company in 1901 to form the Allis-Chalmers Company.

Mr. Bateson was succeeded in January, 1940, by F. E. Haker, who at that time, was appointed Manager of all the company's huge purchasing activities.

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F.O.B. *Philosophy of buying*

WHENEVER a half dozen American business men get together, their first impulse is to form an Association. Consequently it is not surprising to report the organization of the National Defense Association of Purchasing Agents, which held its first meeting last month in Don Clark's room at the Shoreham Hotel, Washington. The roster of those present included:

Capt. James M. Berry, U. S. Army (formerly chairman of the N.A.P.A. Shipping Container Committee)

Donald G. Clark, Division of Purchases, O.P.M. (Past President of the N.A.P.A., and Shipman Medalist)

Major Joseph L. Ernst, U. S. Army (Director of the Rochester Association, and instructor of Purchasing at the Rochester Business Institute)

Lewis A. Jones, Division of Purchases, O.P.M. (Past President of the N.A.P.A., and Shipman Medalist)

General C. A. Kelley, Division of Purchases, O.P.M. (Past President of the N.A.P.A.)

John P. Sanger, Division of Purchases, O.P.M. (General Program Chairman, N.A.P.A. Convention Committee)

Guests

J. Emmet Bittner, Purchasing Agent of the Diamond Alkali Co.

C. A. Bertrand, Purchasing Agent of Pan American Airways

That's pretty good for a start. The list is far from complete as a roster of purchasing men who are now actively in the service of National Defense, but it is an indication of the place for purchasing men in our great national emergency and effort, and of the caliber of men who are answering the call.

One of the most unusual requisitions ever handed to a Purchasing Agent is cited in the annual report of the Cincinnati City Purchasing De-

partment. It called for "four days of drizzling rain." P. A. Harry Wagner modestly comments that the requisition was "satisfactorily completed . . . with the aid of the Almighty."

DIRECTOR General Knudsen of O. P. M. has publicly gone on record that he is sick of hearing the word "bottleneck" and goes on to say that "Time is the only bottleneck." Purchasing Agents, too, are sick of bottlenecks—not the word, but the fact—in the sense of the frontiersman who caught a grizzly by the tail and hung on desperately for several hours, remarking, as he later told of his adventure, "I never got so sick of a bear in my whole life." The time element is what created bottlenecks, and time will eliminate them. Mr. Knudsen himself is doing a heroic and effective work to that end. Meanwhile, the men who are responsible for getting materials to their companies have to live with bottlenecks, and it is their testimony that "A bottleneck by any other name would be as sour."

WE RAN across an interesting bit of equipment on a buyer's desk the other day, that might gain much wider acceptance if it were more generally known. It was a clock with two dials, one facing each way. The P.A. had received it as a gift, with the explanation that if it were placed on a bedside table, between a pair of twin beds, both Mr. and Mrs. could check up on the time without disturbing the other and without emulating a circus contortionist to get the proper angle. Not being of the twin bed persuasion, he brought it down to the office, where it now quietly ticks away the interviews, for the benefit of the buyer on one side of the desk and for the salesman on the other side. "They like it," he said. "Like it well enough to mention it, and there hasn't been one adverse comment. It helps them to organize their time, and to do a more

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businesslike job. If they need a few extra minutes to tell their story completely, they are frank in asking for it, knowing that there is a positive check on elapsed time. As for myself, I like it too. Why shouldn't I? It saves me literally hours every week."

A couple of months ago, F.O.B. quoted a Purchasing Agent to the effect that "Purchasing and selling are just alike, except that in selling you go to the buyer's office and in purchasing the seller comes to you." That definition has suddenly gone into reverse. Salesmen (at least those who haven't yet been called in off the road) are finding an increasing number of their P.A. friends "out of town on business," and one sales manager reports that he has had more calls from the purchasing executives of his customers in the past two months than in the previous five years.

A MAIL selling piece that comes about as close to a complete personal demonstration and sales clincher as anything we have seen, and does the job more effectively than the average interview, is the Cost Comparison Test Kit used by the American Nickeloid Co., manufacturers of pre-finished bonded metals designed to eliminate the necessity of plating and polishing operations after fabrication. The kit consists of actual working samples of the metals recommended for a prospective customer's particular requirements; a mimeographed manual of instructions for working with these metals, including drawings of some representative operations; multiple copies of a comparative cost sheet tabulation form which takes into consideration the materials and operations eliminated, and the hidden cost factors incidental thereto; and multiple copies of a summary sheet showing the indicated production and overhead economies per part and per year. The presentation is patterned closely upon the most successful type of personal selling. Sooner or later, nearly every job gets down to a serious and detailed consideration of costs. The use of this kit has the additional advantage that the customer uses his own figures, makes his own calculations, and learns the story of the product for himself.

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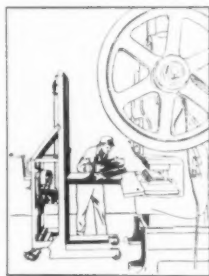
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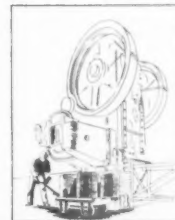
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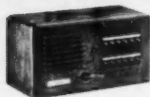
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